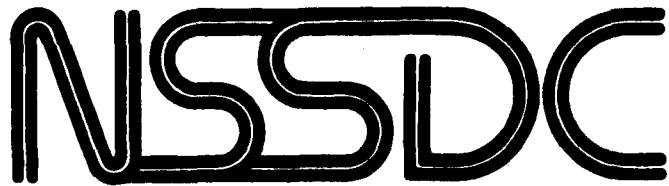


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PROMIS SERIES

VOLUME 2

WDC-C2
**Provisional Auroral Electrojet Indices
for March-June 1986**



National Aeronautics and
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PROMIS SERIES
VOLUME 2

**WDC-C2 Provisional Auroral Electrojet Indices
for March-June 1986**

November 1986

**Prepared by
T. Kamei, M. Sugiura, and T. Araki**

**World Data Center - C2 for Geomagnetism
Faculty of Science
Kyoto University
Japan**

PROVISIONAL AURORAL ELECTROJET INDICES

FOR MARCH - JUNE 1986

PREPARED FOR PROMIS PERIOD

1. Introduction

This report gives provisional values of the Auroral Electrojet Indices for June 1986, as the last part of a series, in support of the project PROMIS (Polar Region and Outer Magnetosphere International Study). For details of the AE indices, reference is made to the Data Book Nos. 3-14, published from the WDC-C2 for Geomagnetism (WDC-C2 for short), UAG Reports (e.g. UAG-22) published from WDC-A for Solar-Terrestrial Physics (WDC-A for STP) or the paper on the AE index by T. N. Davis and M. Sugiura in the Journal of Geophysical Research, 71, 785-801, 1966.

For a quick distribution of the results, provisional AE indices are derived and distributed on a monthly basis as shown below.

Period	Report No.	Published
March 1986	1	June 1986
April 1986	2	July 1986
May 1986	3	August 1986
June 1986	4	September 1986

Extensive checks of the data regularly conducted in deriving the AE indices are curtailed for rapid production. The final AE indices will be recalculated and published in the Data Book series later.

This report together with magnetic tape with provisional AE indices will be filed in NASA/NSSDC, Greenbelt, Maryland, U.S.A. and NOAA/WDC-A for STP, Boulder, Colorado, U.S.A. A limited number of microfiche copies are distributed.

2. Data Used

Eleven observatories listed in Table 1 are used. Of these, seven stations are digital stations which are indicated by D in the table. The four remaining stations offering only analogue magnetograms are marked by A.

For rapid acquisition of the necessary data, digital recording from Kiruna is used instead of Abisko data digitized from analogue data that are regularly used for the final AE indices. For Leirvogur, digitization of records was made using microfilm copies of the regular magnetograms.

Hand-traced copies of magnetograms were received from Dixon Island, Cape Chelyuskin, Tixie Bay, and Cape Wellen. Certain selections have been made with the data. For instance, data from Cape Wellen are not used as their contribution to the AE indices is not frequent. All the data from Dixon Island were storm magnetograms; we used these records assuming the base line to be stable and paper shrinkage to be negligible throughout this month. We adjusted the scaling when the base line on the hand-traced copy of a magnetogram is not a straight line. Data from Tixie Bay and Cape Chelyuskin consisted of normal and storm magnetograms, without overlapping period; we adjusted values derived from the storm magnetograms to conform with those derived from the normal magnetograms by comparing values for different quiet periods. Although such an adjustment may be somewhat arbitrary, we find no other good solutions in these cases. Also, where time marks are doubtful, estimated time marks were used.

The H component is calculated from the X and Y components for Yellowknife, Fort Churchill and Poste-de-la-Baleine (formerly Great Whale River). For these stations, if either the X or Y value is missing, the H value is also treated as being missing. The observed H components are used for other stations except for Kiruna. As Kiruna data show short period instrumental noise, the H component was not calculated to avoid noise enhancement; instead, the X component was used. As the declination at Kiruna is small, differences between variations in the X component and those in the H component are negligible in the result.

3. Results

Monthly quiet-time H reference values for June 1986 are listed in Table 2. Table 3 gives the hourly average values of provisional AE indices for June 1986. Daily graphs of 1.0-min provisional AE indices (AU, AL, AE and AO) are shown in Fig. 1, and corresponding plots of the contributing stations are given in Fig. 2. Figure 3 shows the H (or X) traces of magnetograms from stations used to derive provisional AE indices for June 1986.

4. Acknowledgements

Dr. E. W. Hones, Jr. of the Los Alamos National Laboratory was instrumental in the planning on the production of the AE indices for the PROMIS interval on an accelerated time schedule. Dr. S. D. Shawhan and Dr. T. E. Eastman of the NASA Headquarters have been helpful in providing, through SCOSTEP, partial financial support that has made rapid digitization effort possible. We wish to express our deep appreciation of their important contributions. We are indebted to many individuals without whose cooperation it would not have been possible to produce AE indices so rapidly. We thank Mr. G. J. van Beek and Mr. F. Plet of the Geological Survey of Canada, Dr. T. Saemundsson of the University of Iceland, Dr. B. Hultqvist and Mr. I. Haggstrom of the Kiruna Geophysical Institute, Mr. L. R. Wilson and Mr. D. C. Herzog of the United States Geological Survey, Dr. E. Friis-Christensen of the Danish Meteorological Institute, and Dr. V. A. Troitskaya and Dr. E. P. Kharin of Soviet Geophysical Committee, Academy of Sciences of the USSR, for their respective efforts to achieve quick transmission of data. We also thank Mr. J. H. Allen and Mr. C. C. Abston of WDC-A for STP for communication support via the NOAANET computer system. We wish to express our appreciation of Ms. Y. Yamamoto's dedicated effort in the digitization and preparation of the figures.

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MASAHISA SUGIURA, and
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September 3, 1986

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Table 1. List of Stations

Observatory	Abbreviation			Geographic Coord.		Geomanetic Coord.	Type
		IAGA	Other	Lat. (°N)	Long.(°E)		
Kiruna	KIR			67.83	20.42	65.08	116.41 D
Dixon Island	DIK	DI,DIX		73.55	80.57	63.02	161.57 A
Cape Chelyuskin	CCS	CC,CCH		77.72	104.28	66.26	176.46 A
Tixie Bay	TIK	TI,TIX		71.58	129.00	60.44	191.41 A
Barrow	BRW	BW		71.30	203.25	68.54	241.15 D
College	CMO	CO		64.87	212.17	64.63	256.52 D
Yellowknife	YKC	YEK		62.40	245.60	69.00	292.80 D
Fort Churchill	FCC	FC		58.80	265.90	68.70	322.77 D
Poste-de-la-Baleine	PBQ(GWC)			55.27	282.22	66.58	347.36 D
Narssarssuaq	NAQ	NAS		61.20	314.16	71.21	36.79 D
Leirvogur	LRV	LR,LER		64.18	338.30	70.22	71.04 A

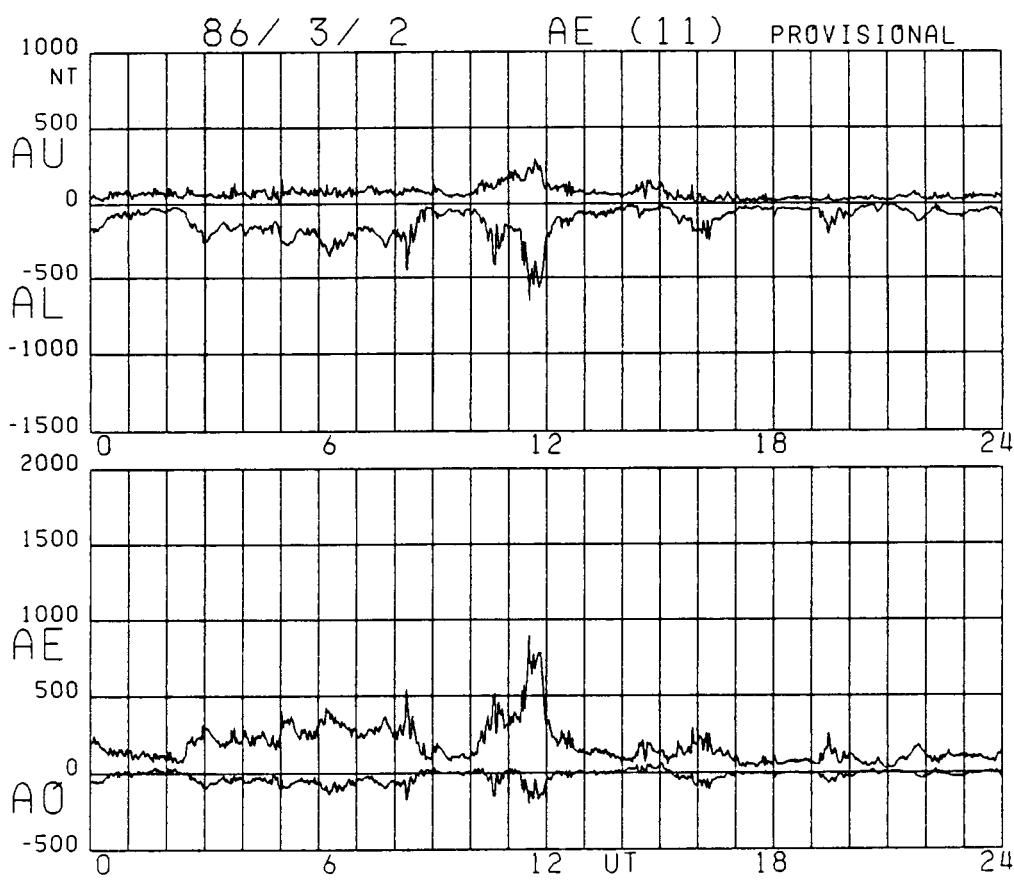
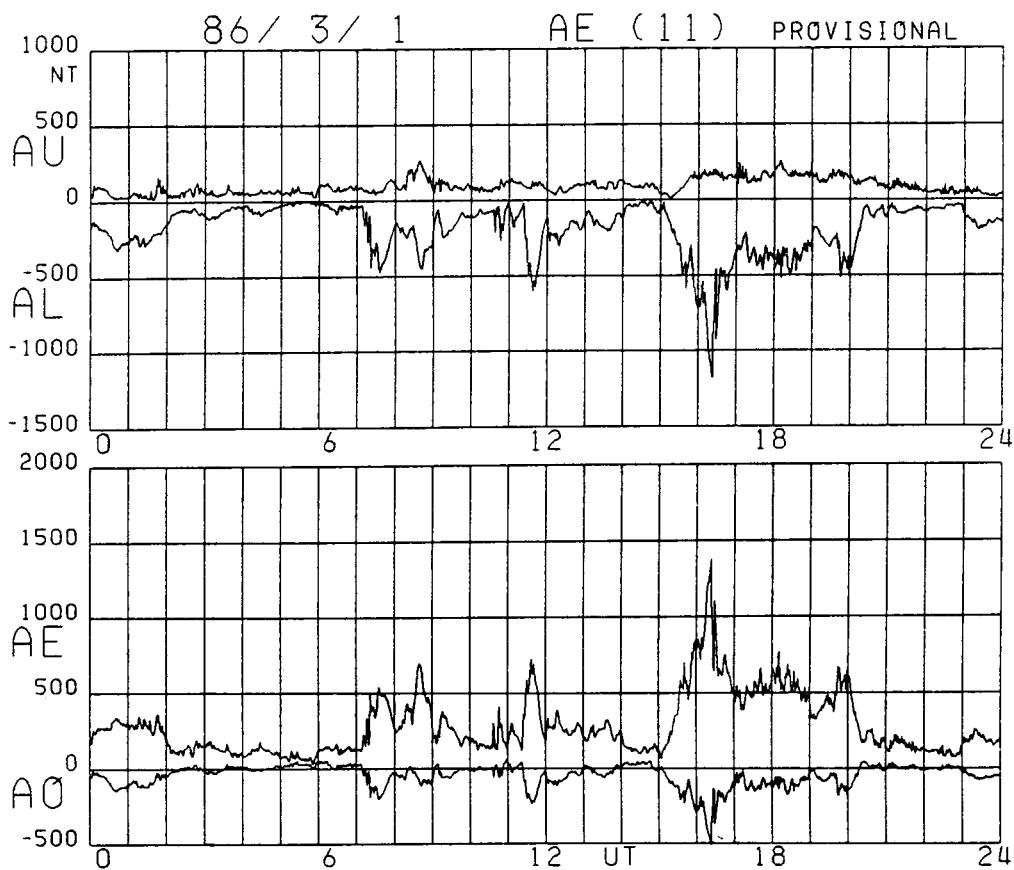
Table 2. Monthly Quiet-Time H Reference Values (Unit nT)
For June 1986

Kiruna (X component)	11005	
Dixon Island	6199	
Cape Chelyuskin	+284	(H0+)
Tixie Bay	+51	(H0+)
Barrow	9631	
College	12886	
Yellowknife	8812	
Fort Churchill	7825	
Poste-de-la-Baleine	10799	
Narssarssuaq	12197	
Leirvogur	+232	(H0+)

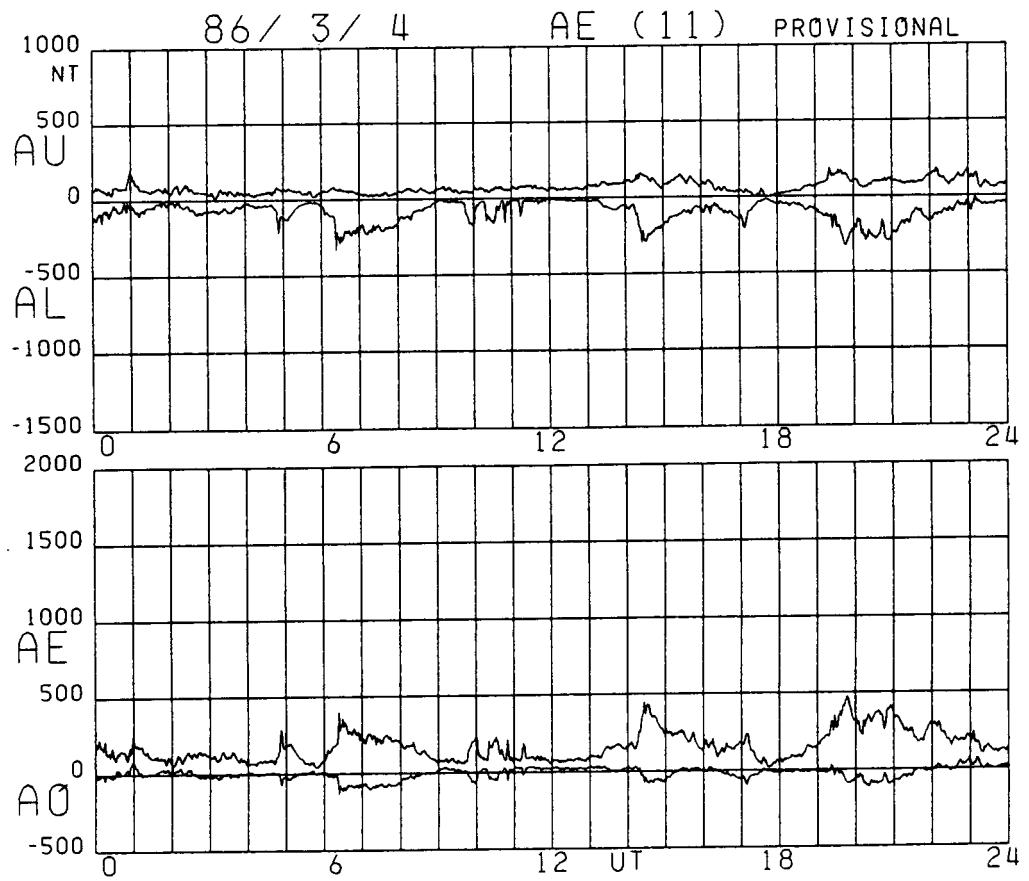
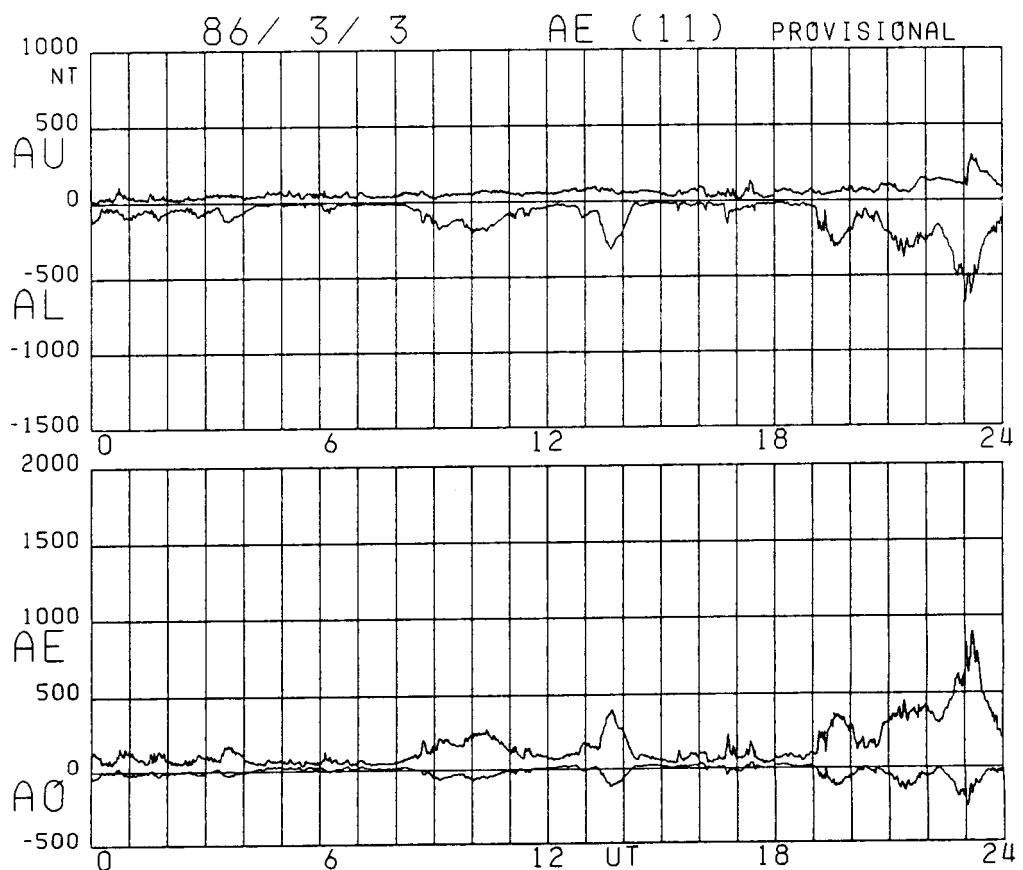
(H0+) : As the absolute values are not provided by these stations,
the deviations from the H base lines on the ordinary
magnetograms are given.

*** Note added on the replacement of Great Whale River ***

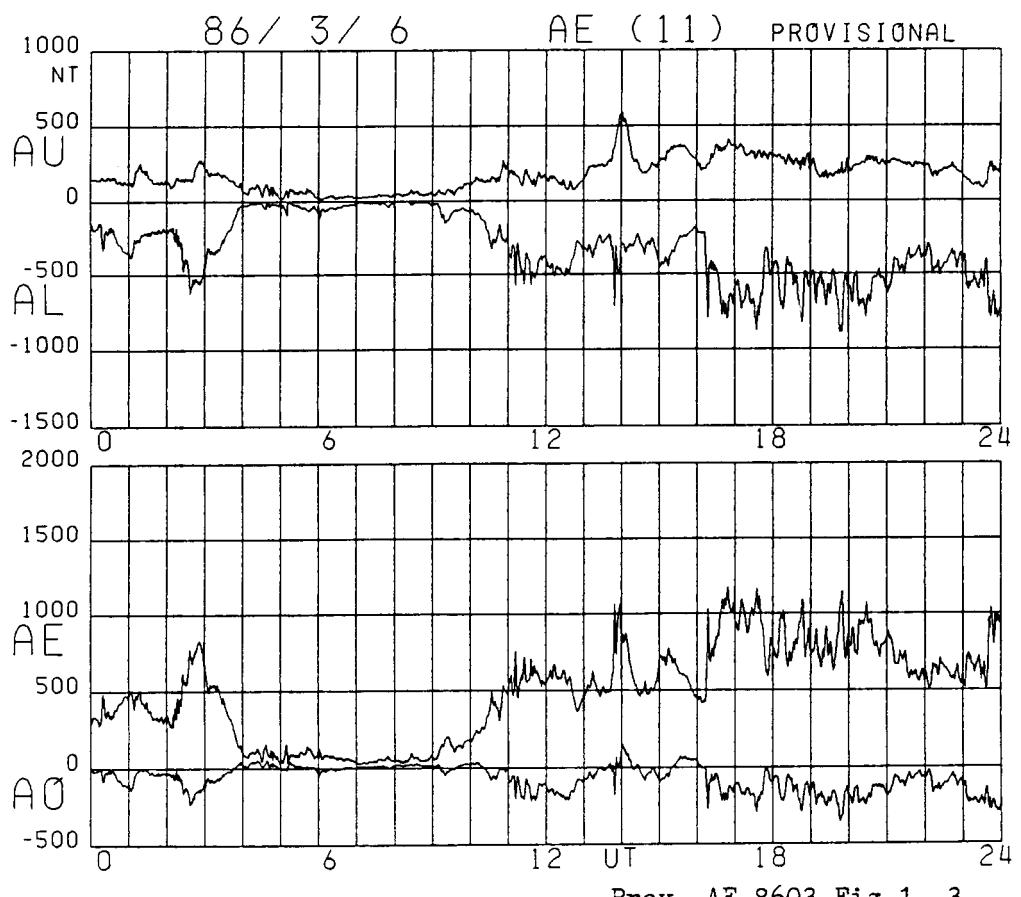
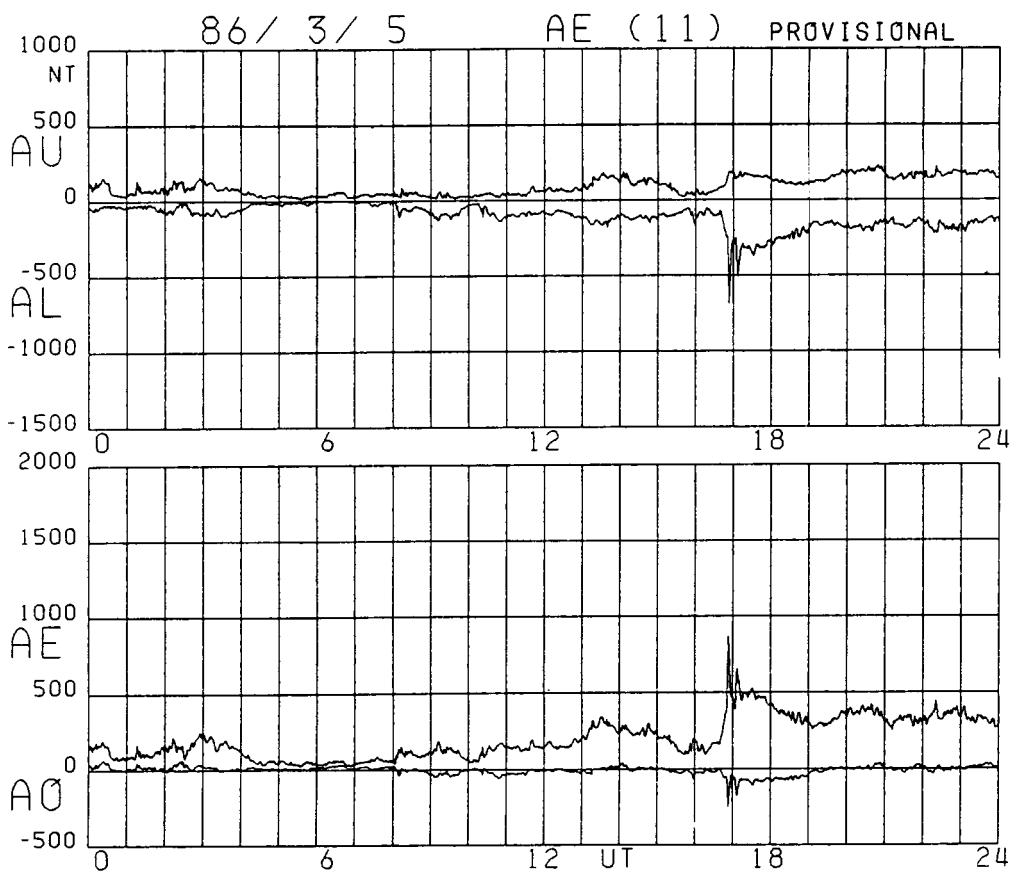
The station 'Great Whale River' was closed on July 31, 1984, and since September 8, 1984, observation has been conducted at a new station near the village of 'Poste-de-la-Baleine'. The new station is not far from the old station, and is labeled by the same latitude and longitude identifier. The old IAGA code GWC, has been replaced by the new station code PBQ. In our previous reports (Nos. 1 and 2) the data obtained at the new station were used, although we denoted the station as Great Whale River.



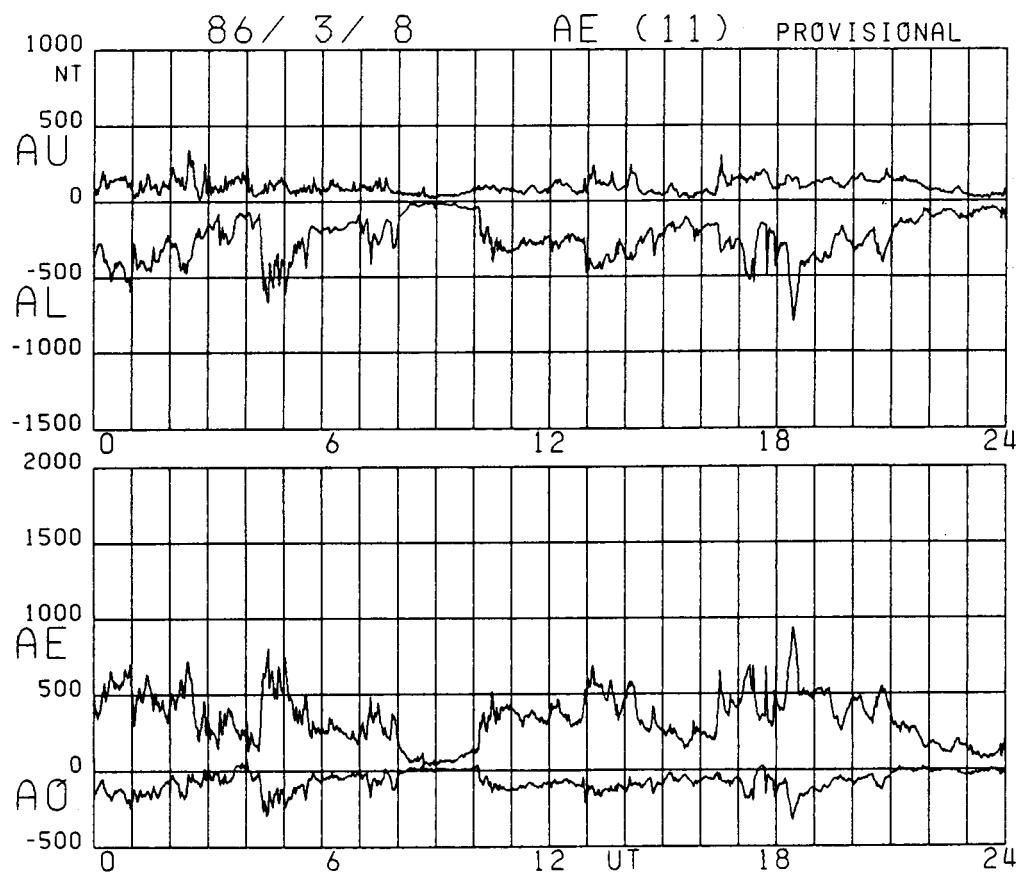
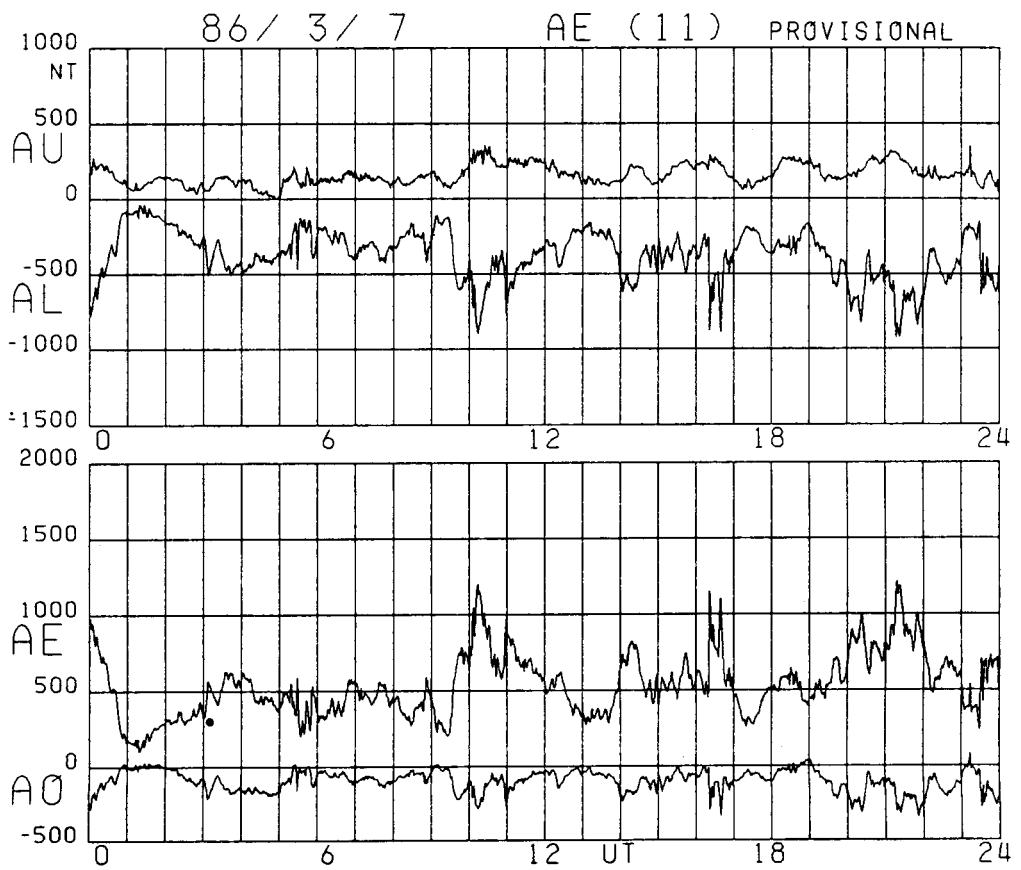
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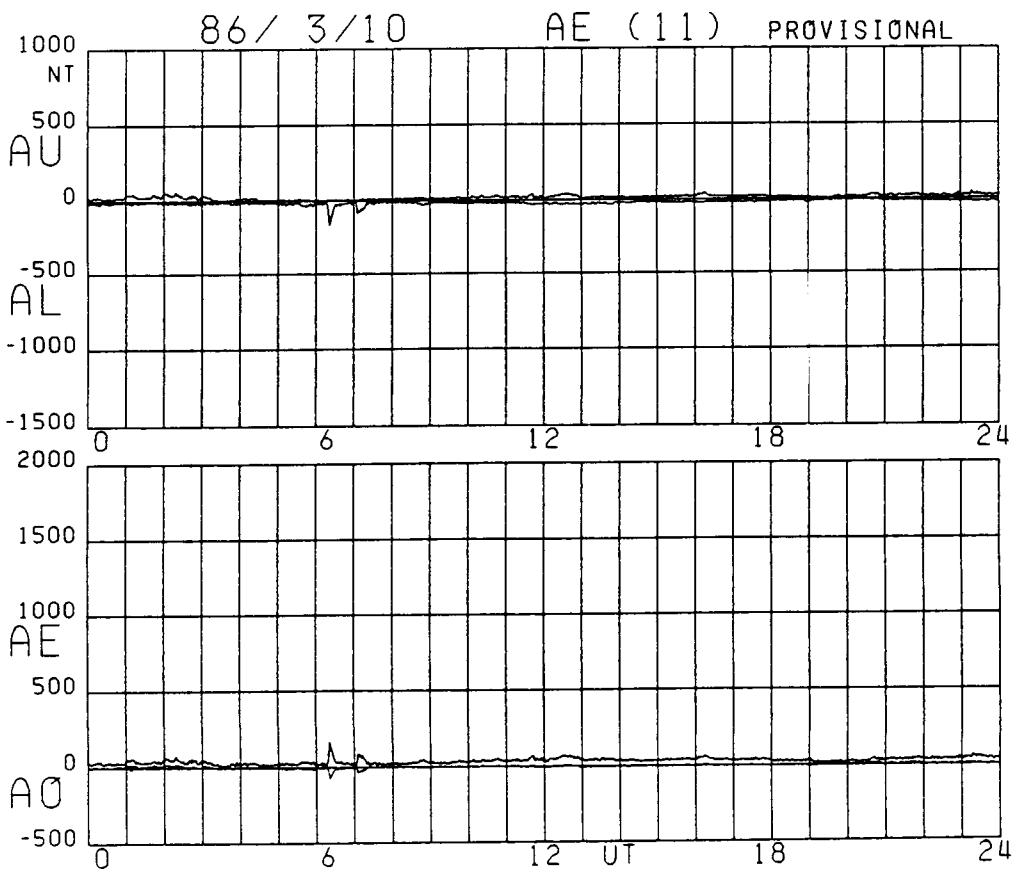
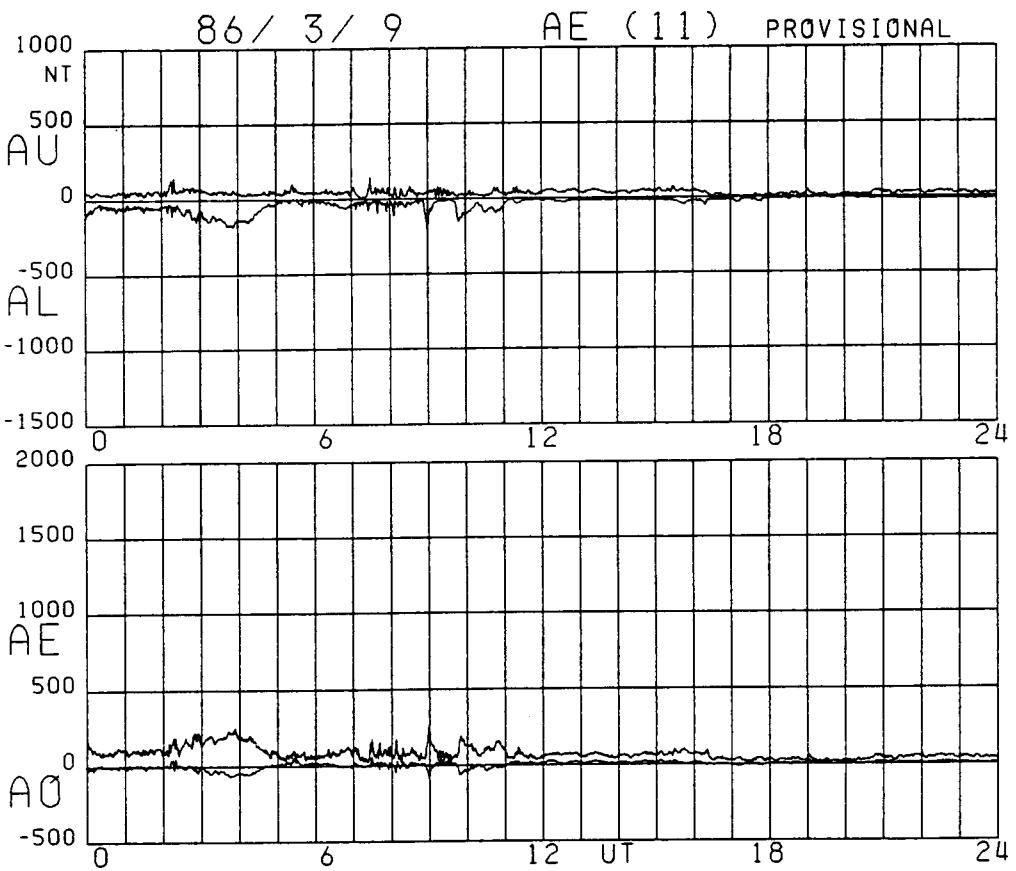
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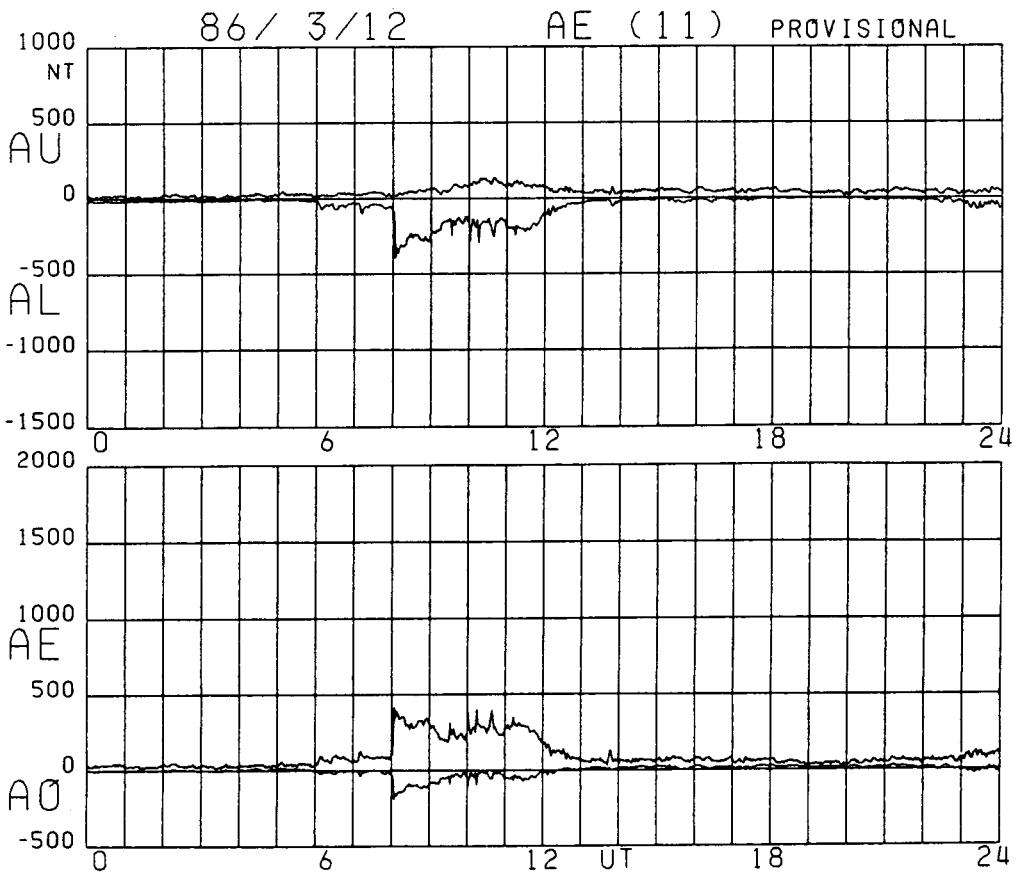
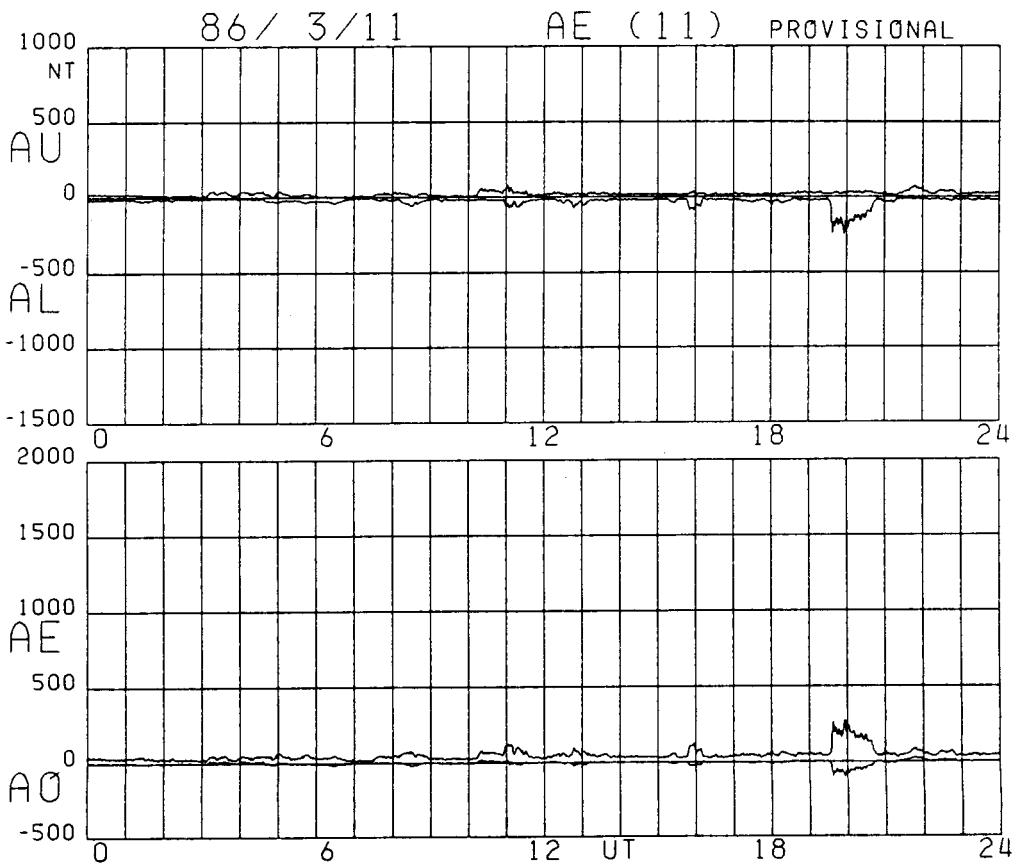
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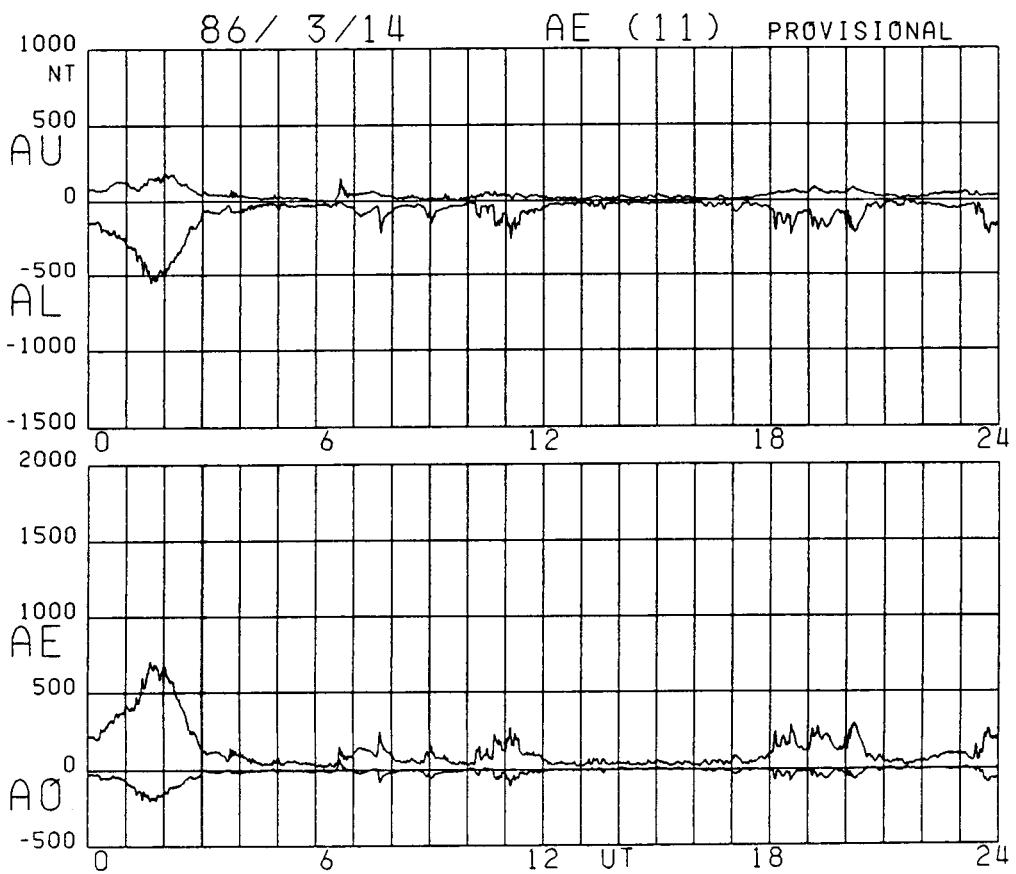
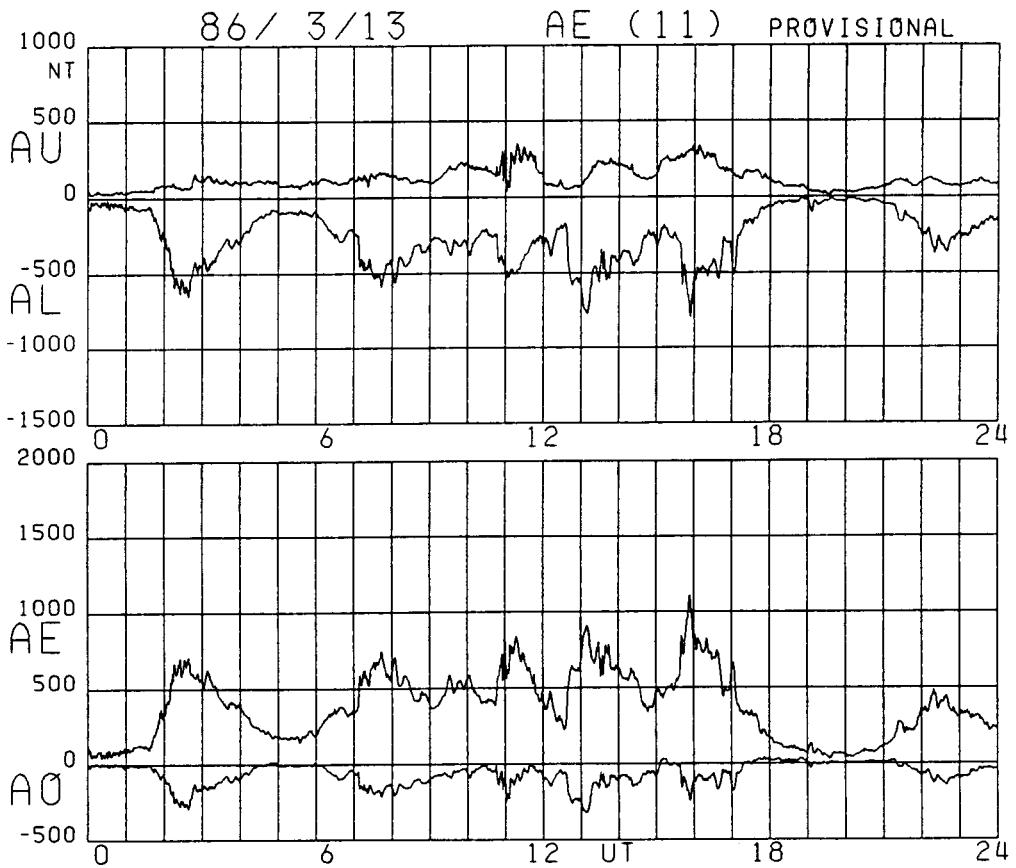
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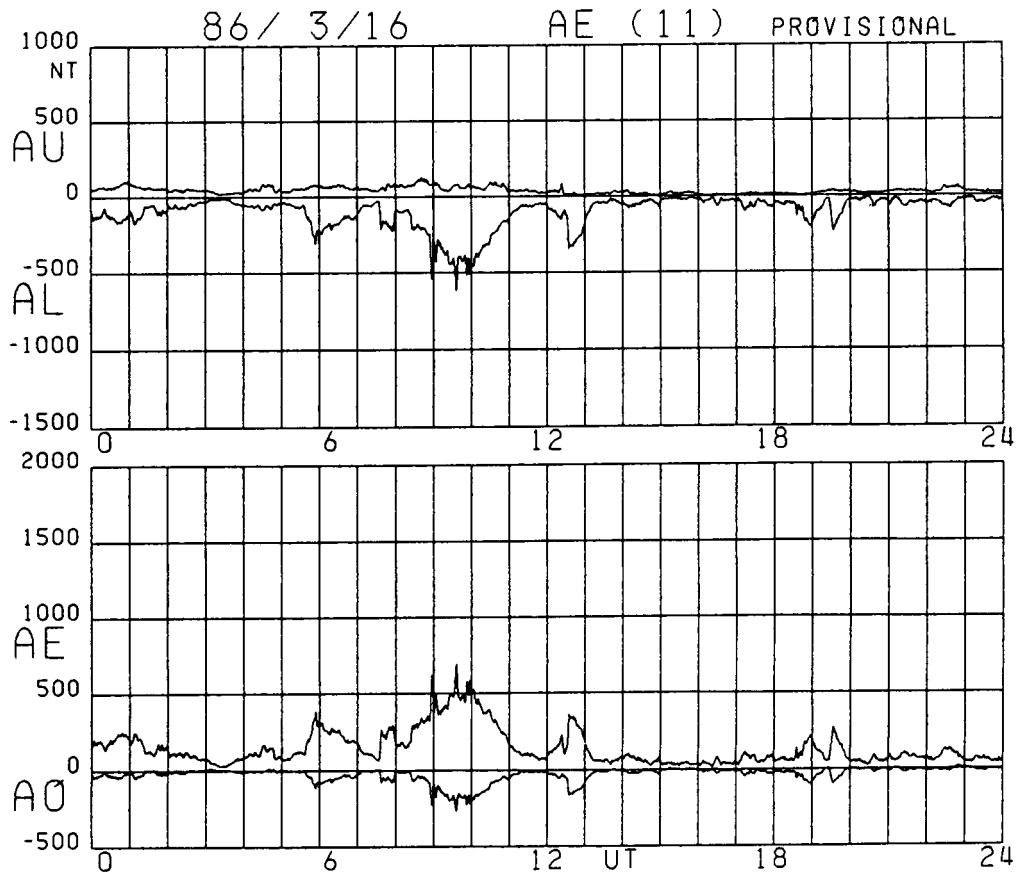
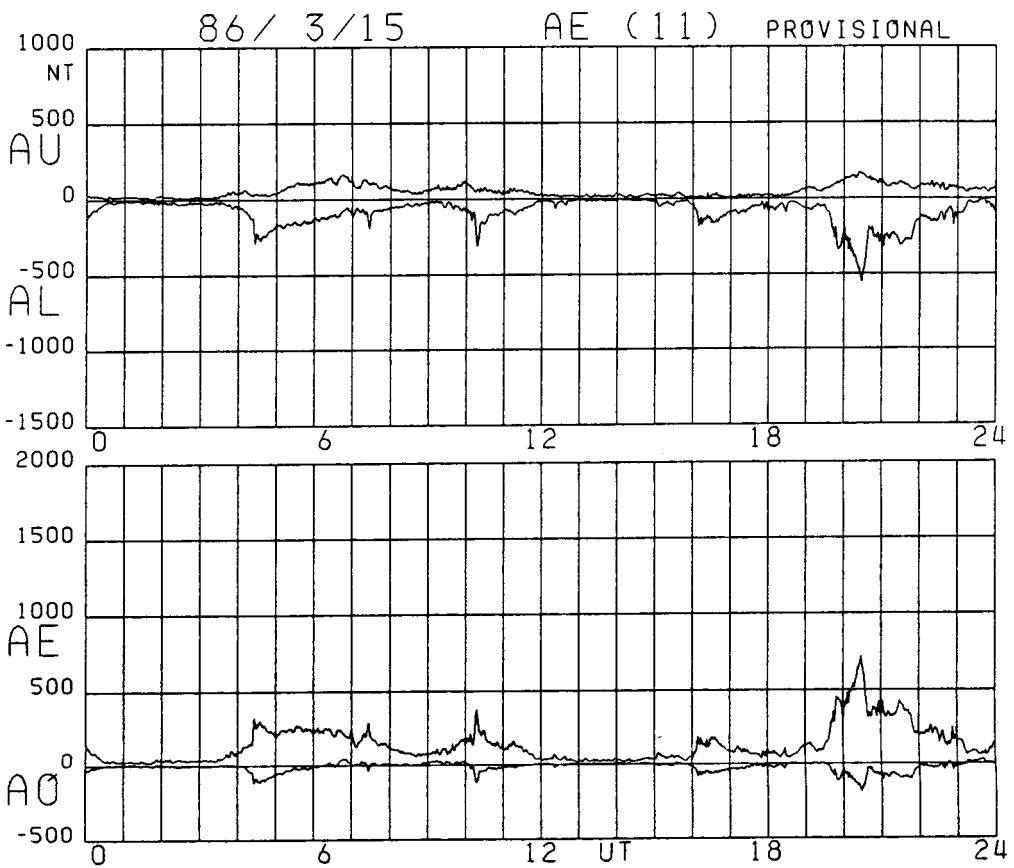
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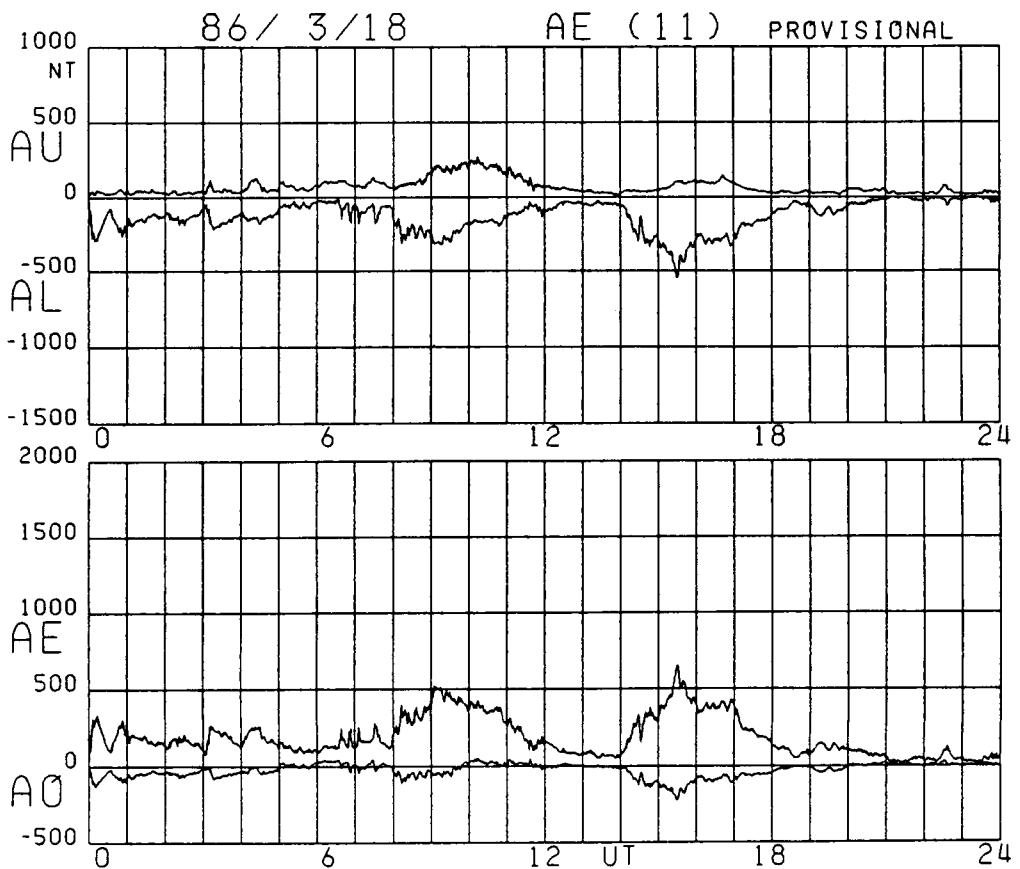
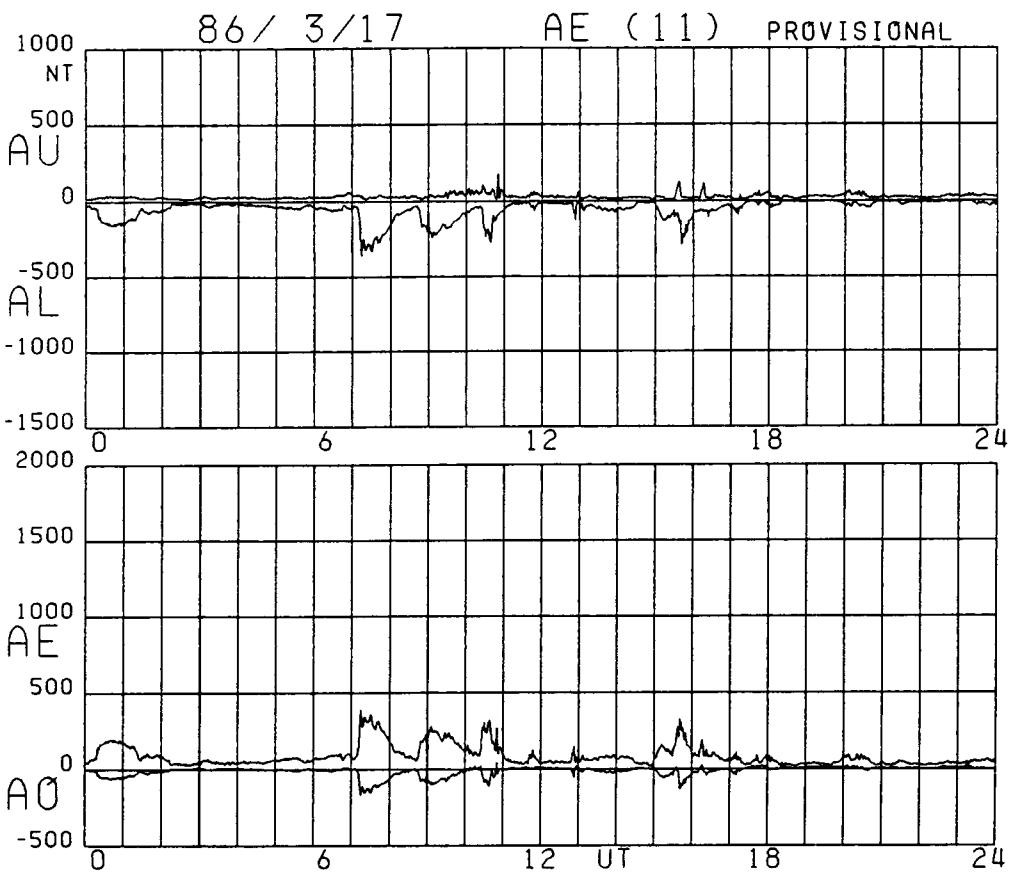
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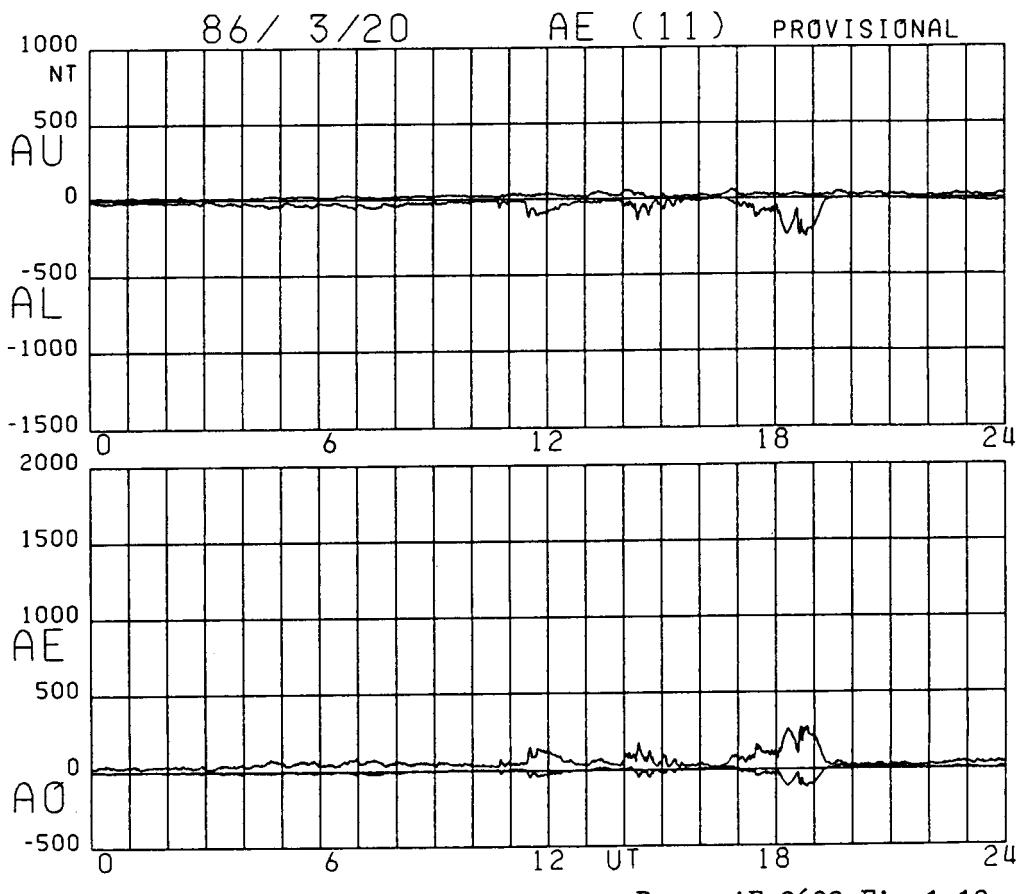
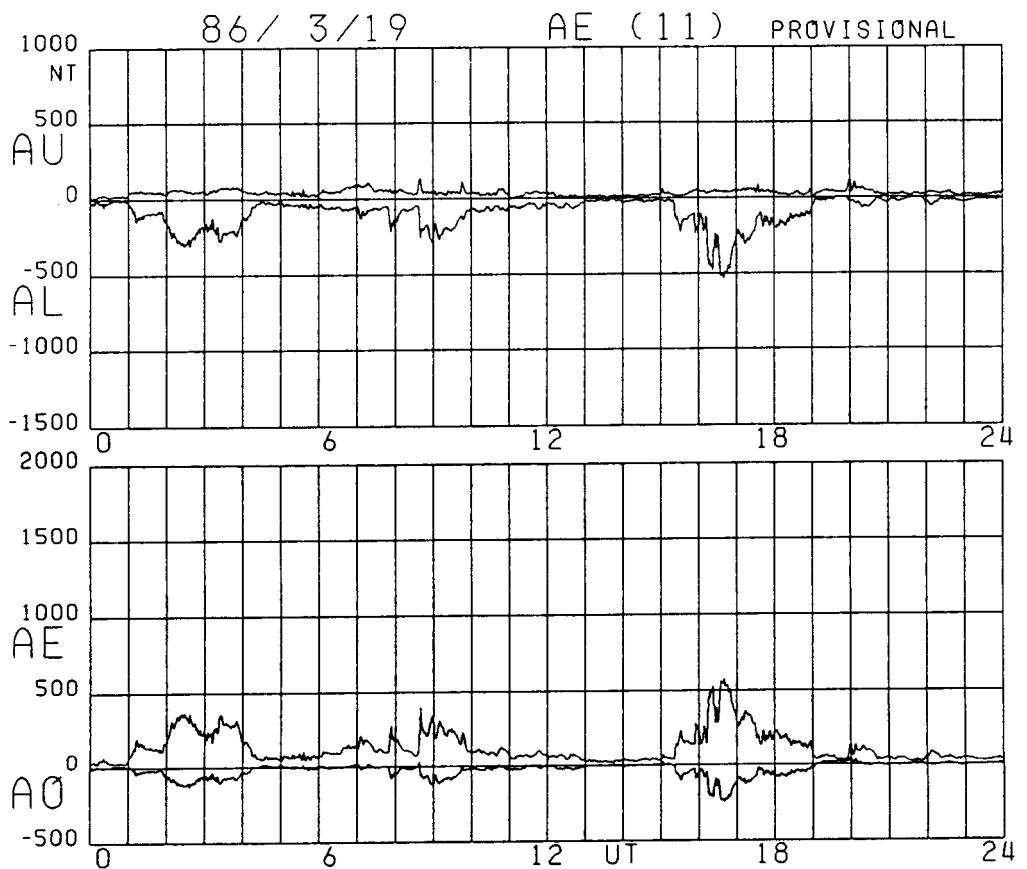
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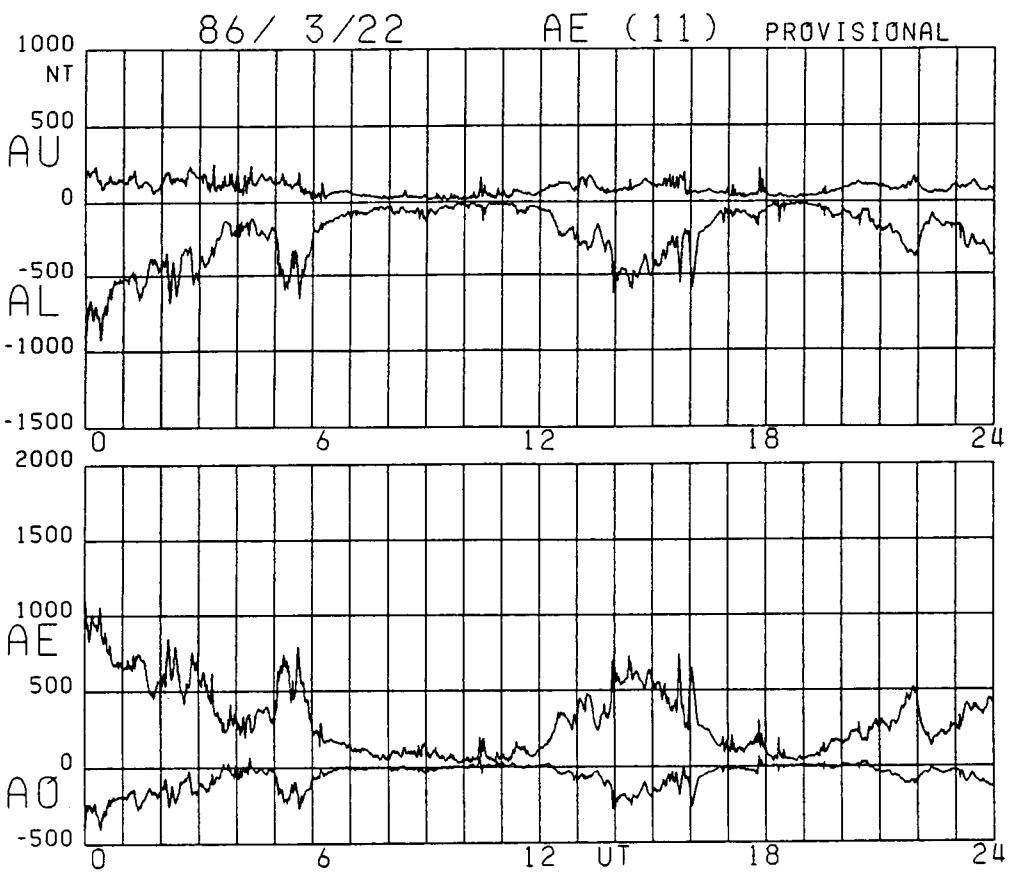
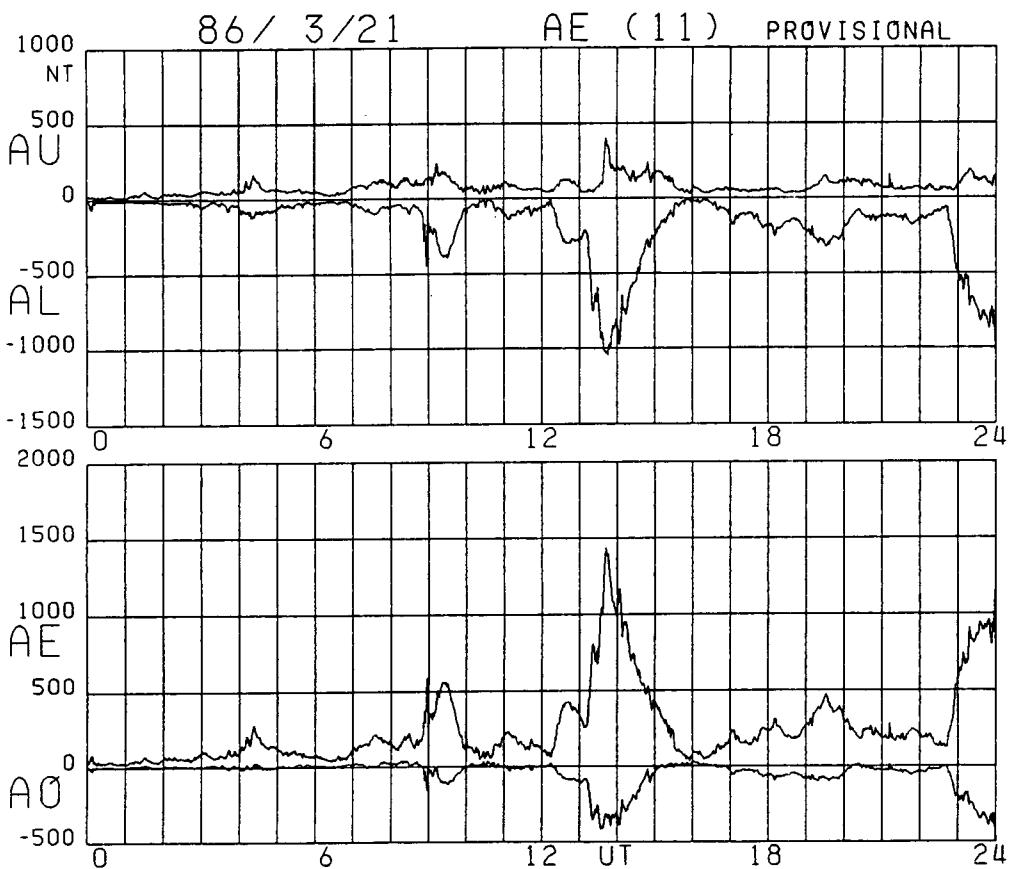
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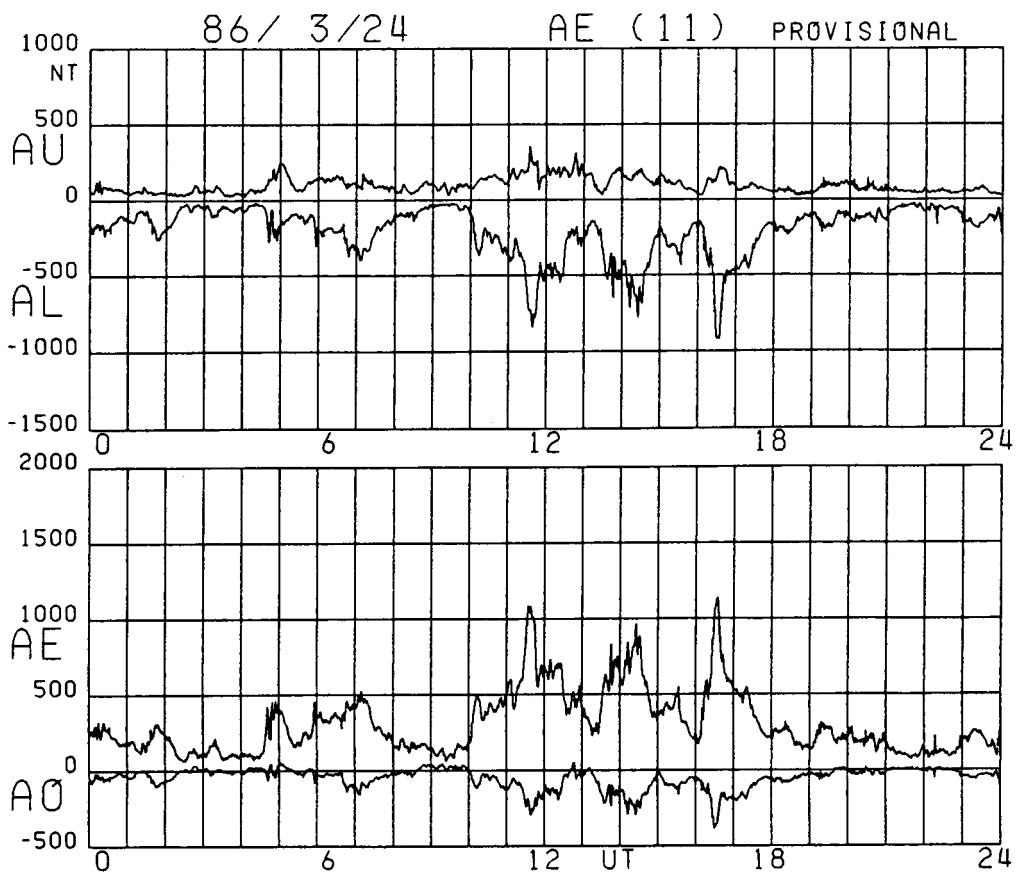
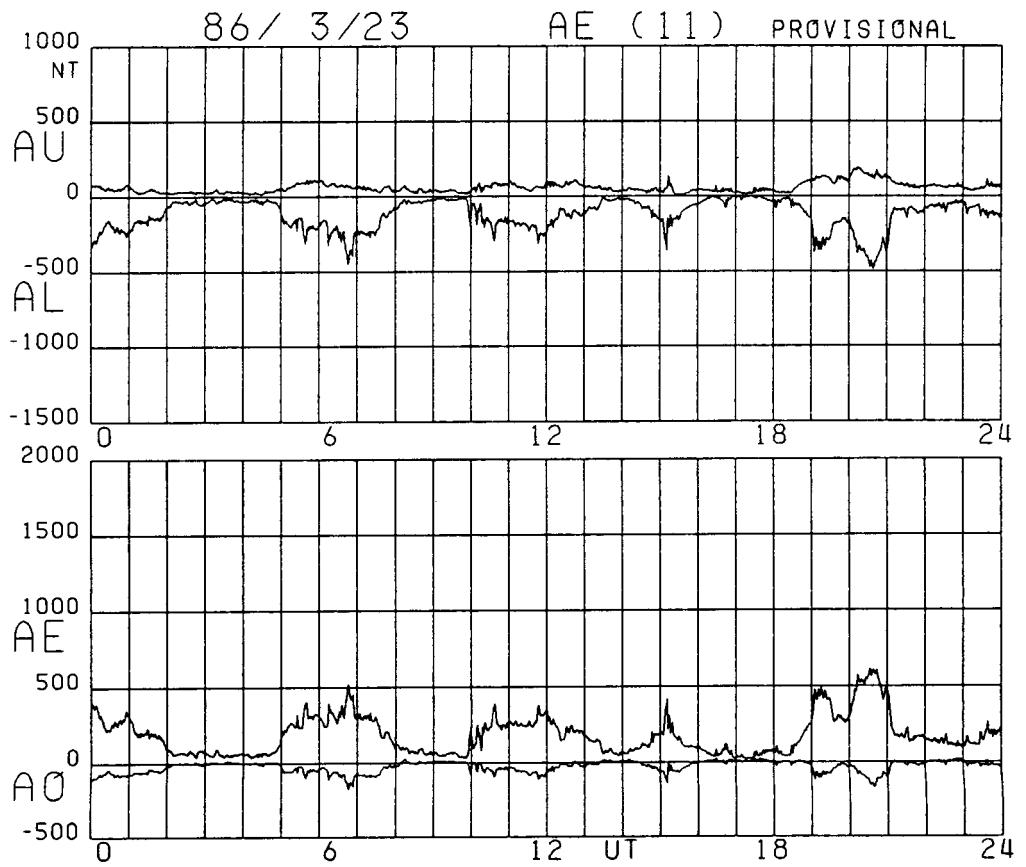
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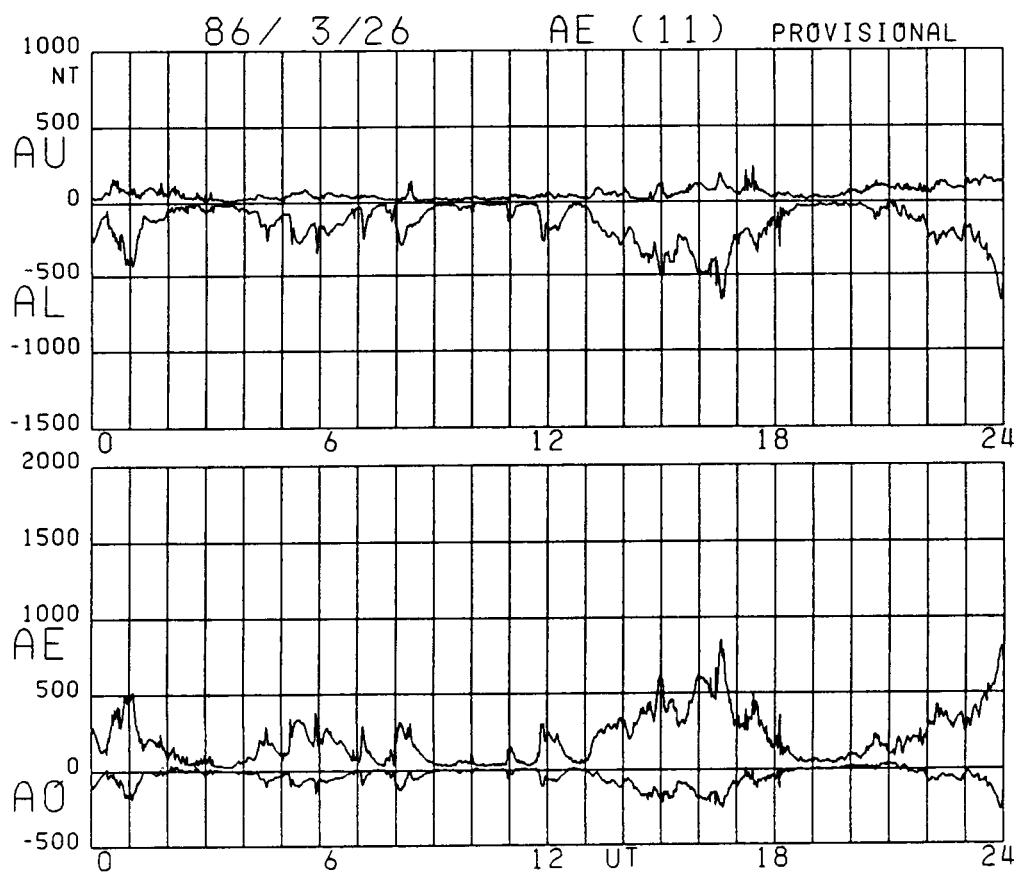
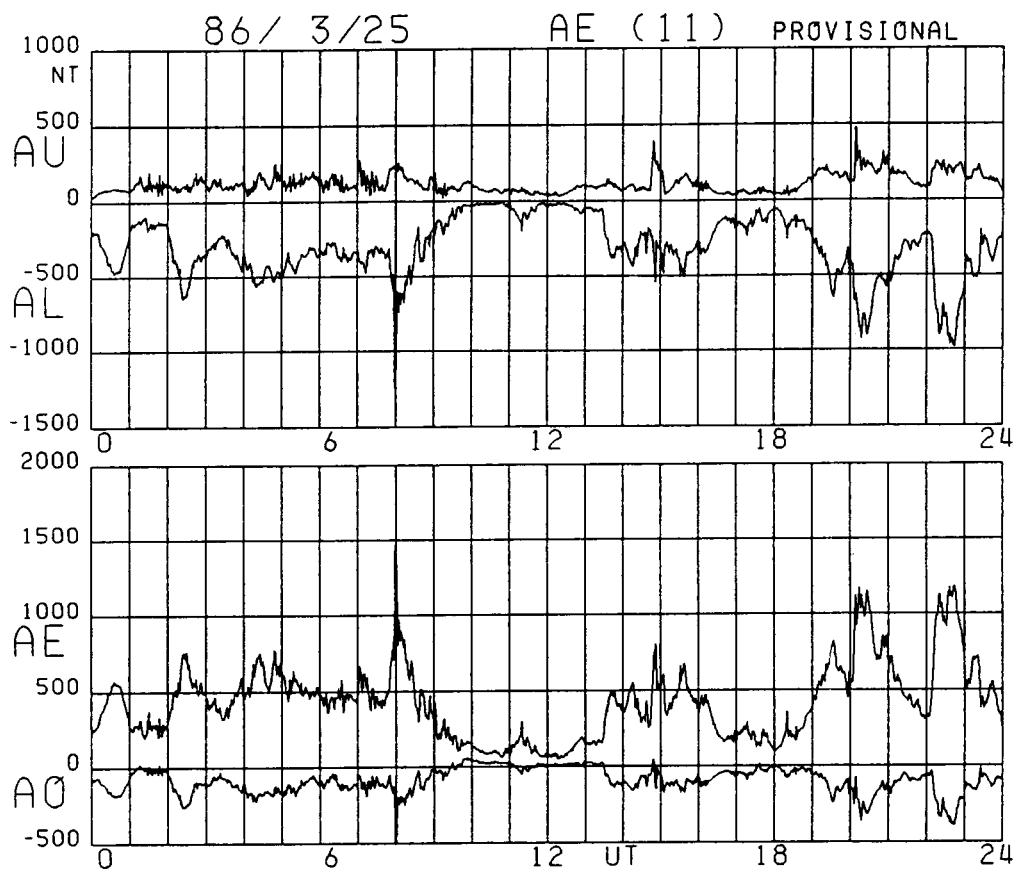
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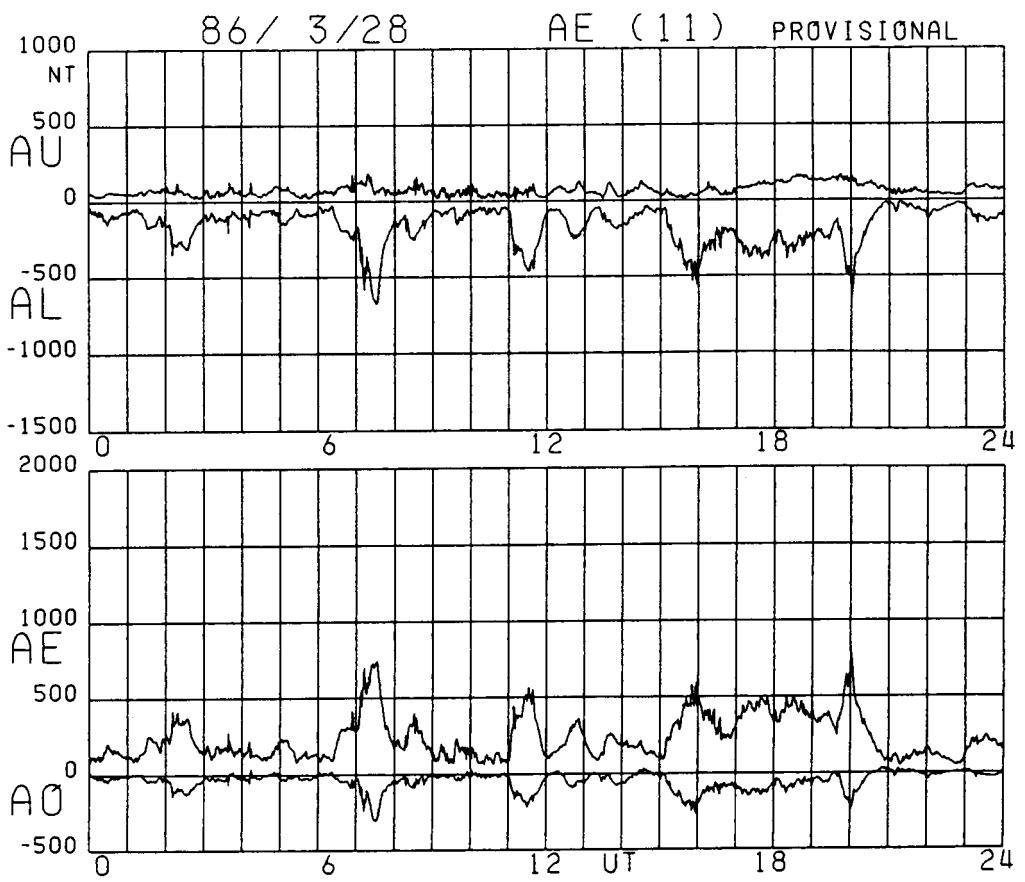
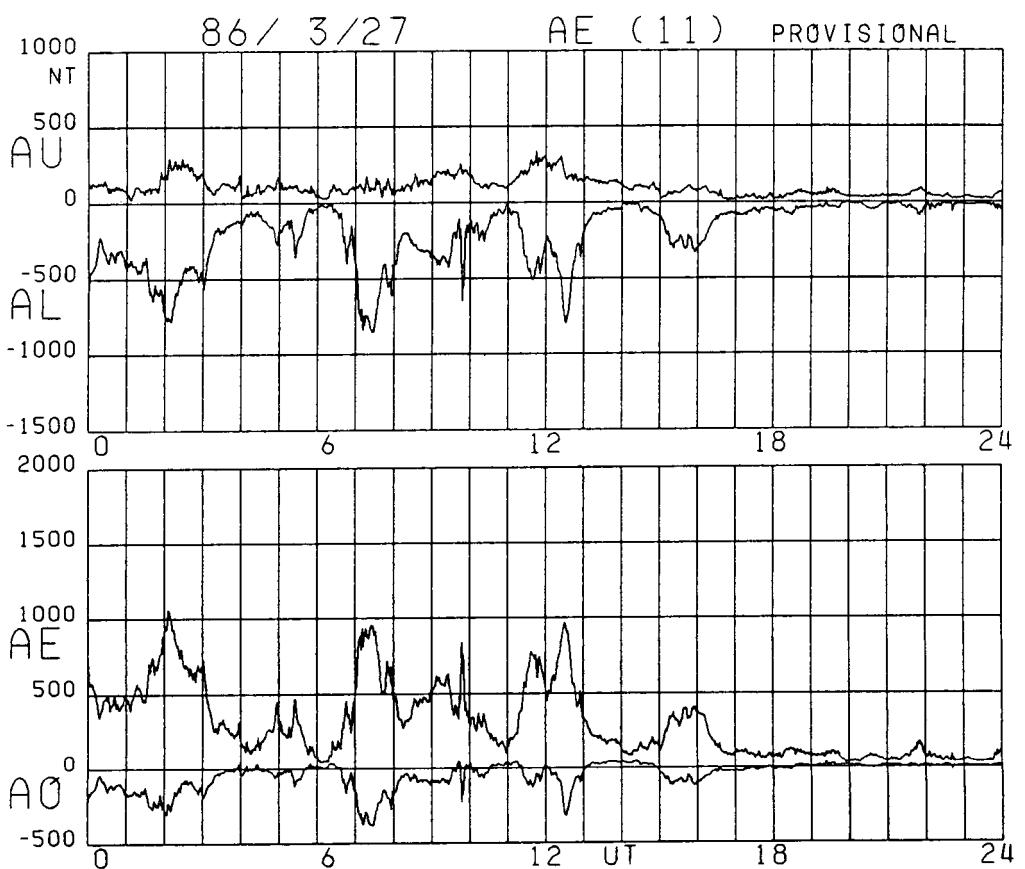
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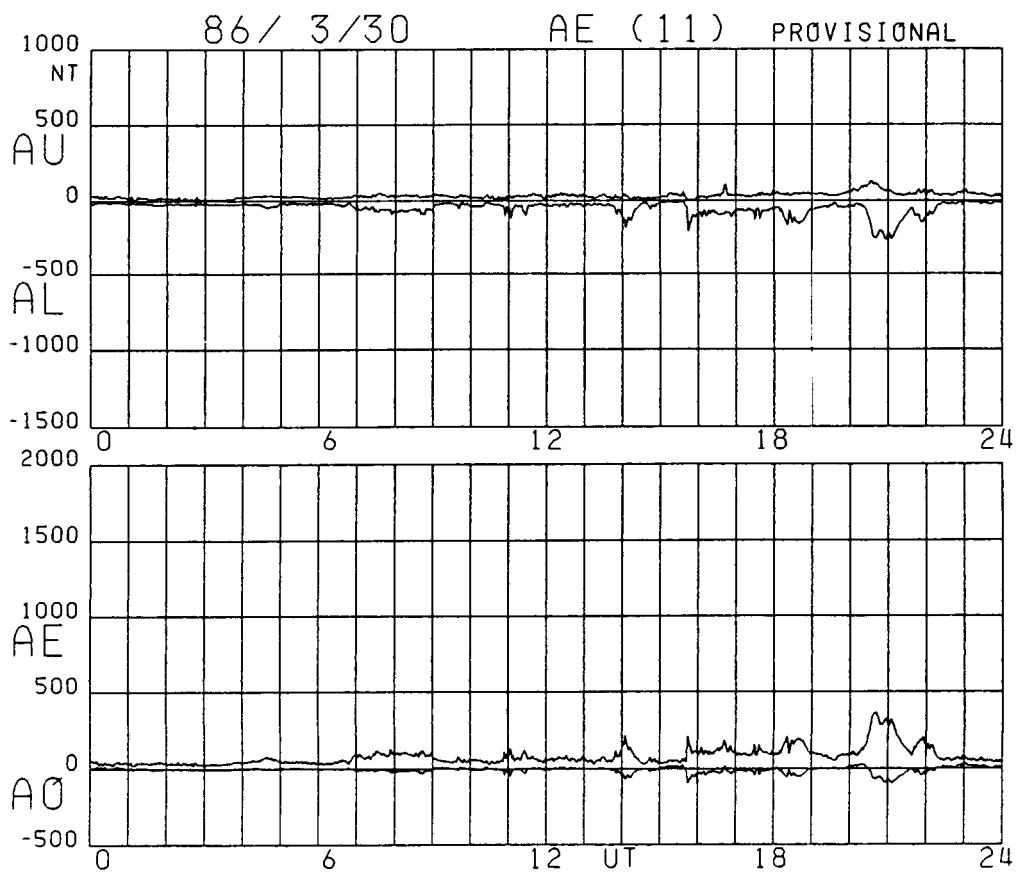
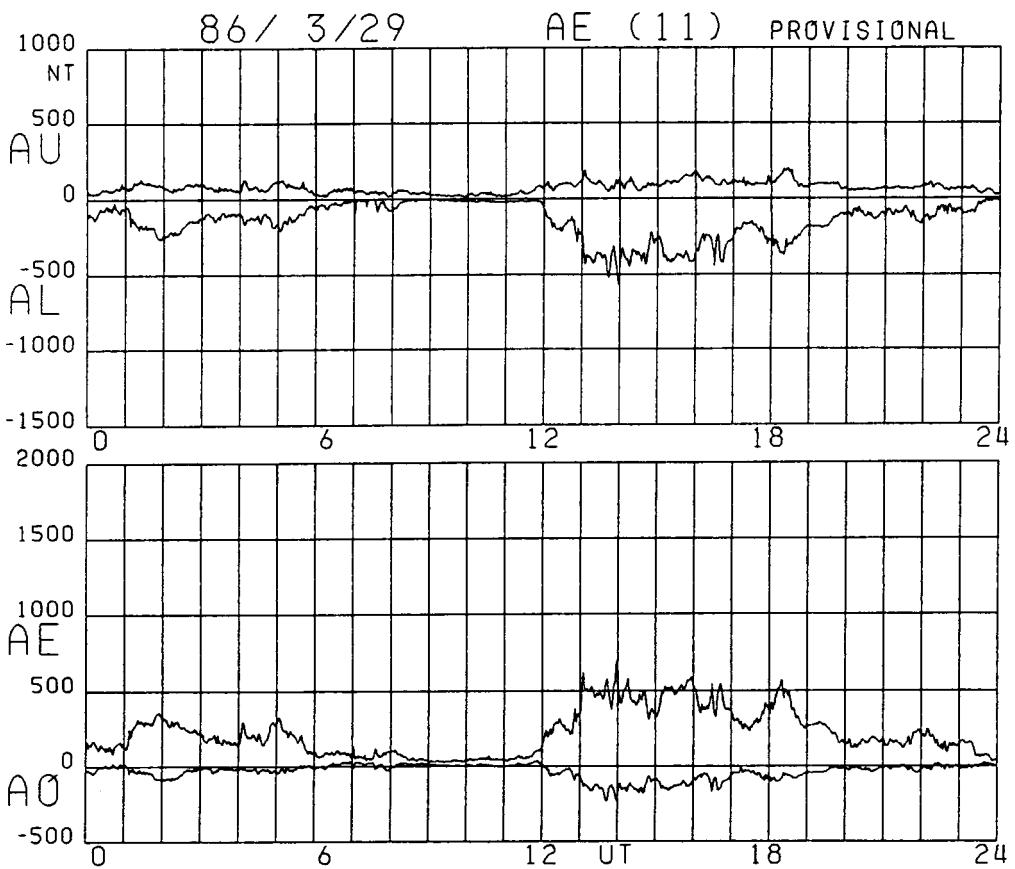
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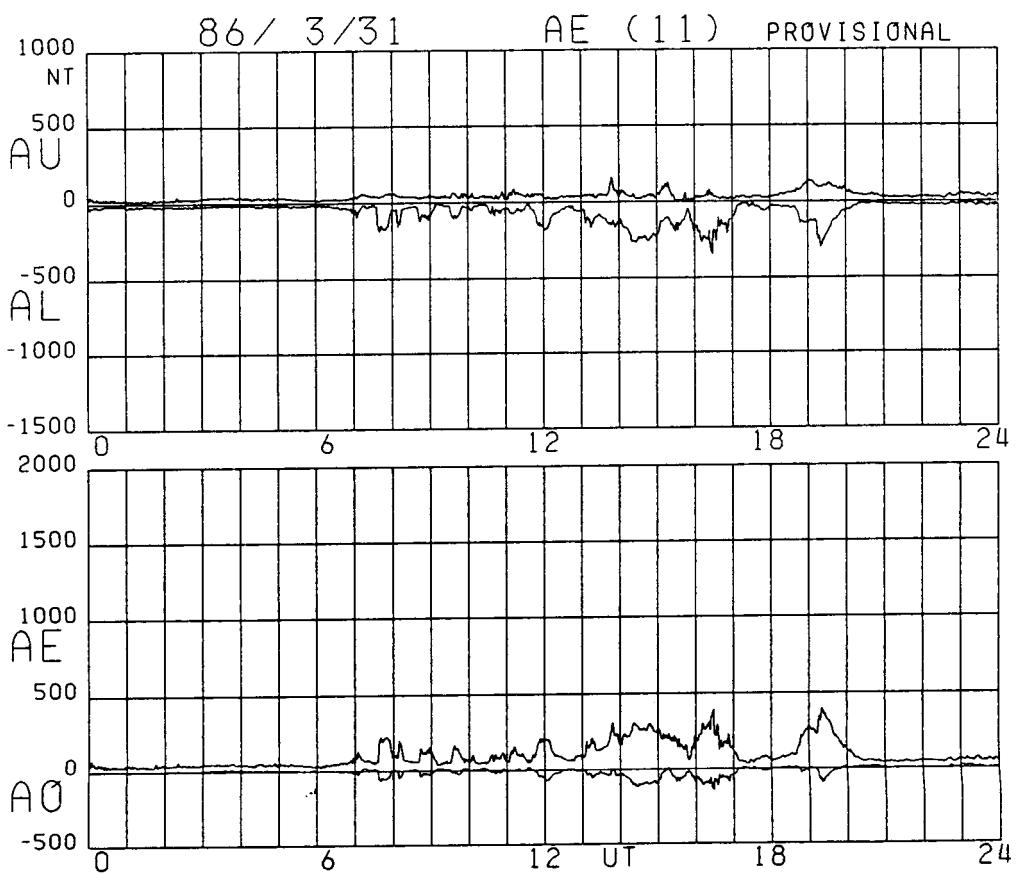
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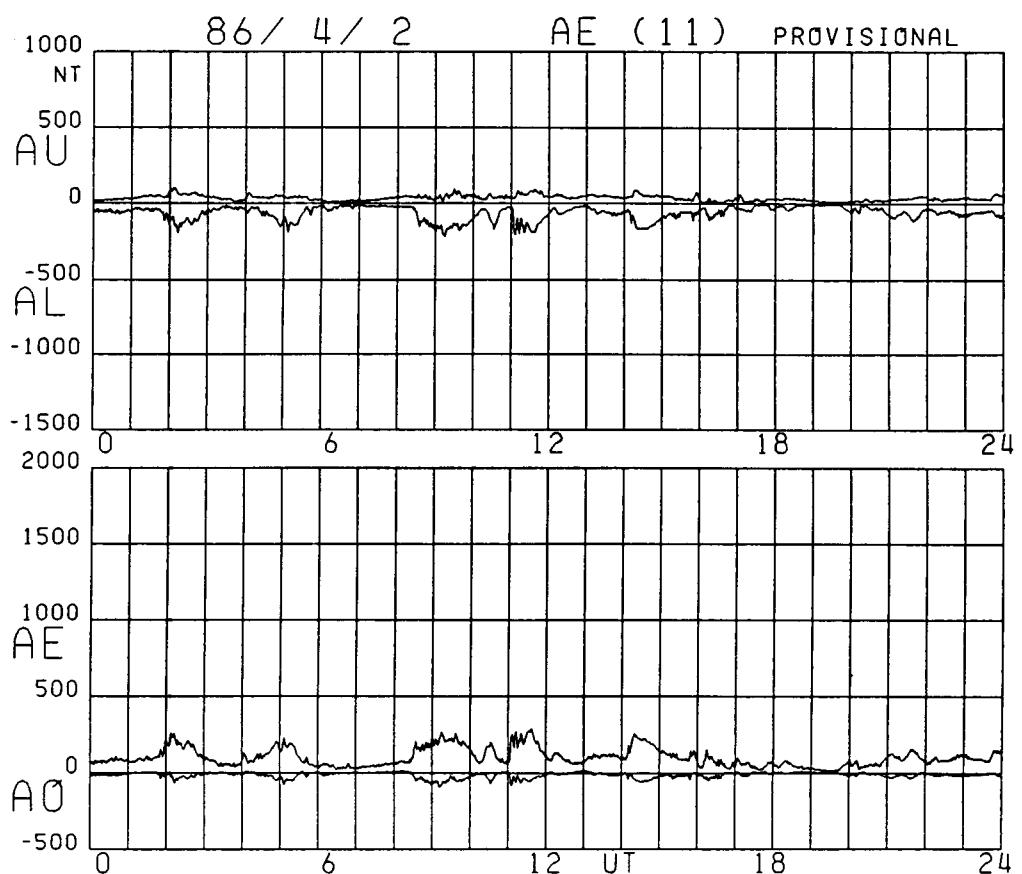
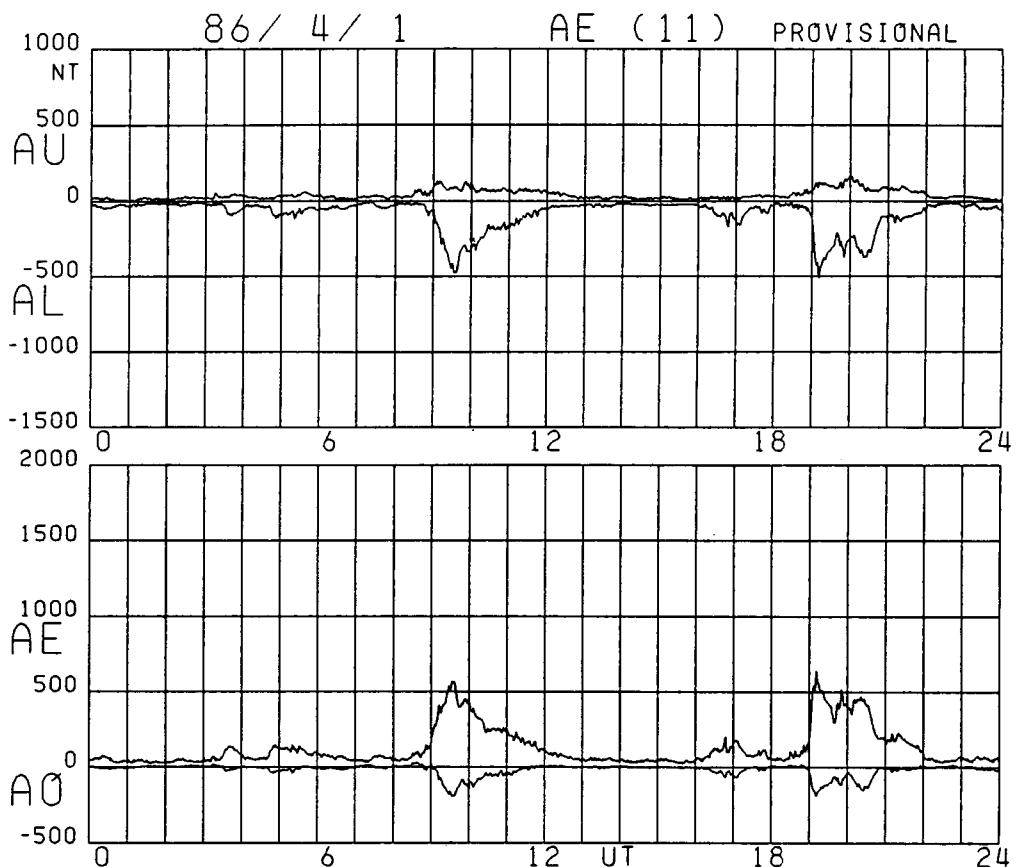
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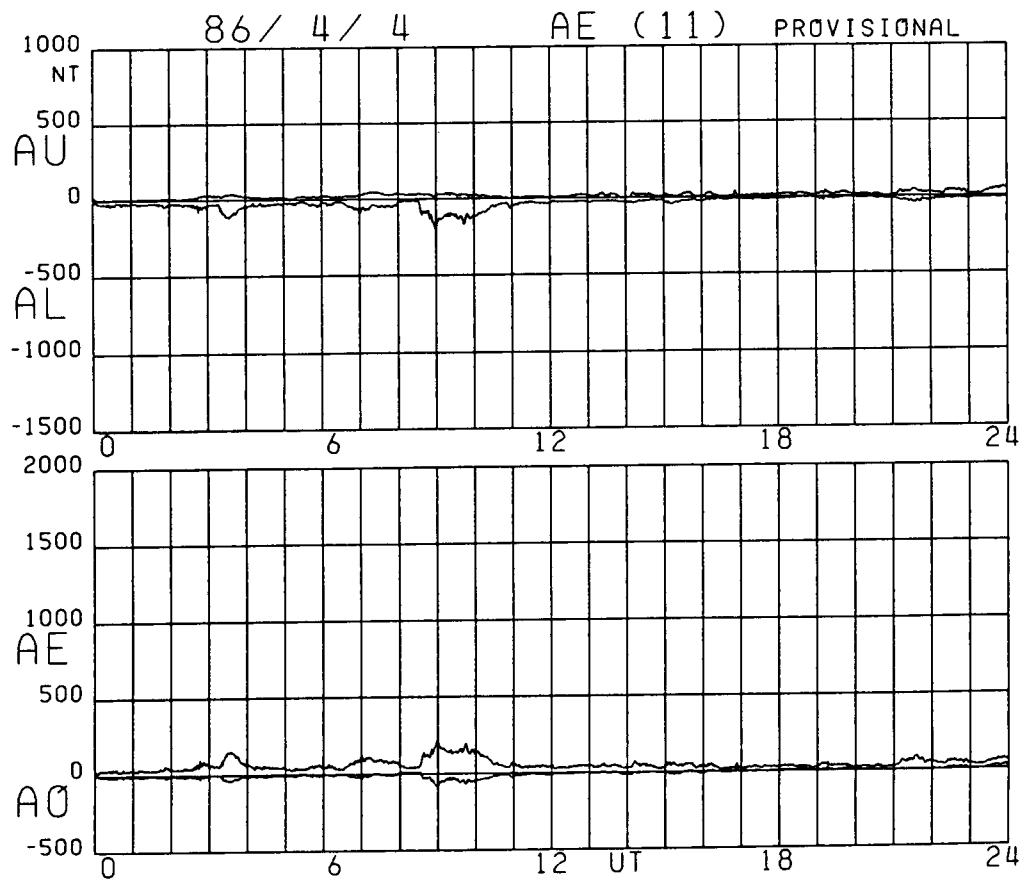
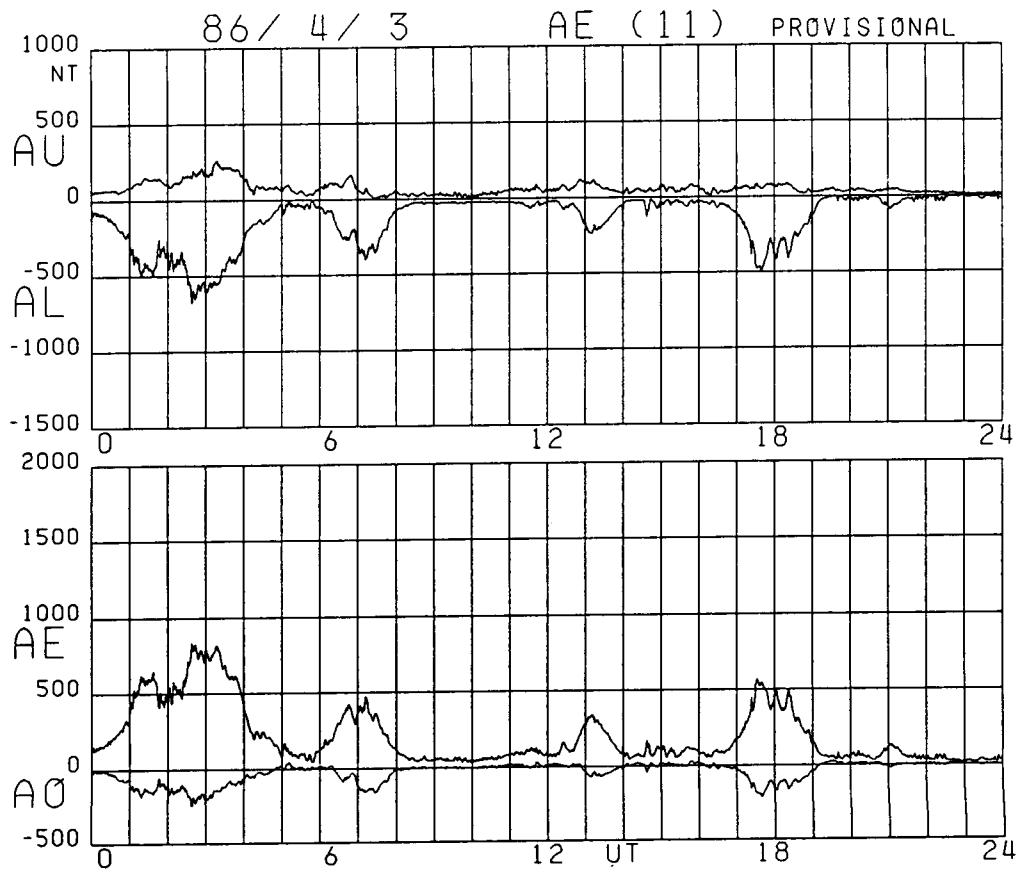
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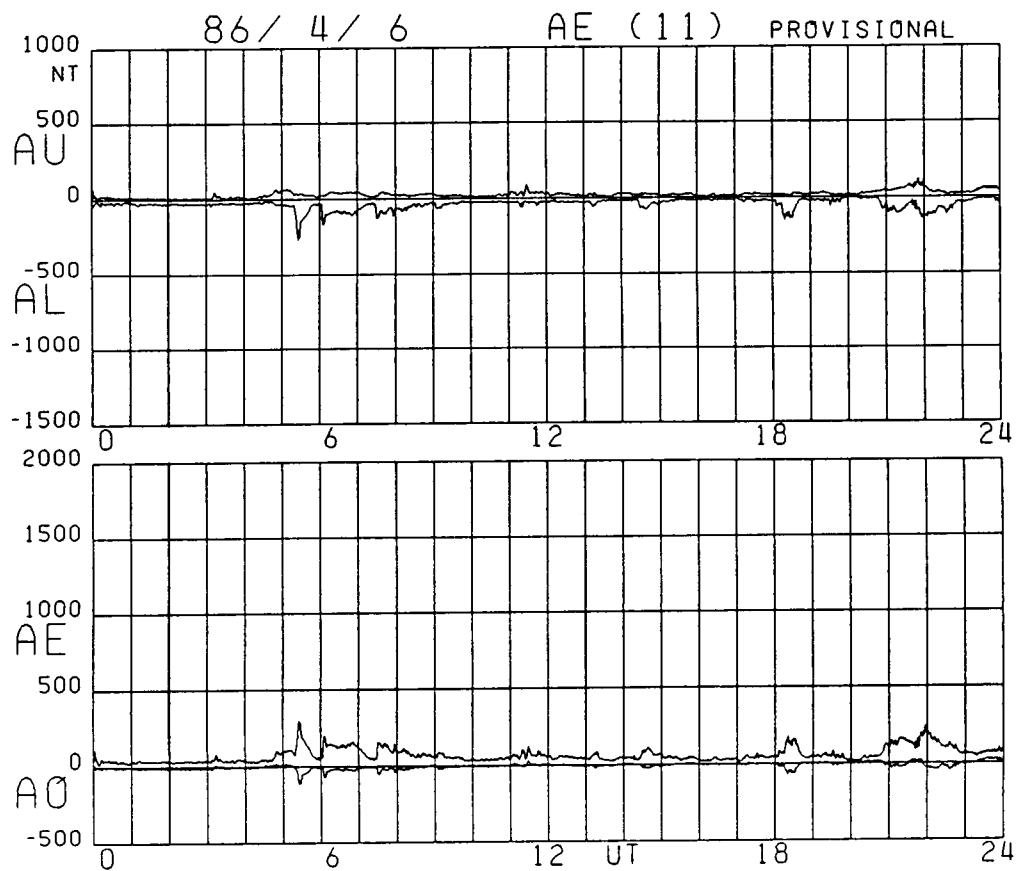
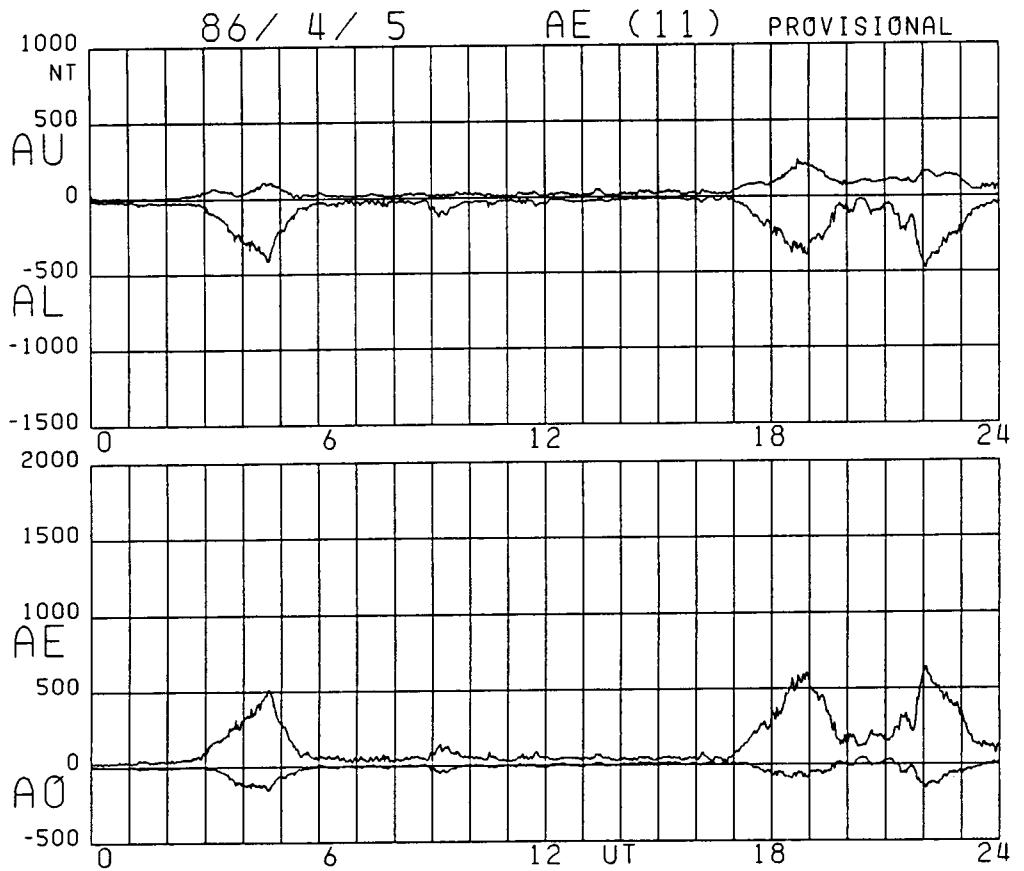
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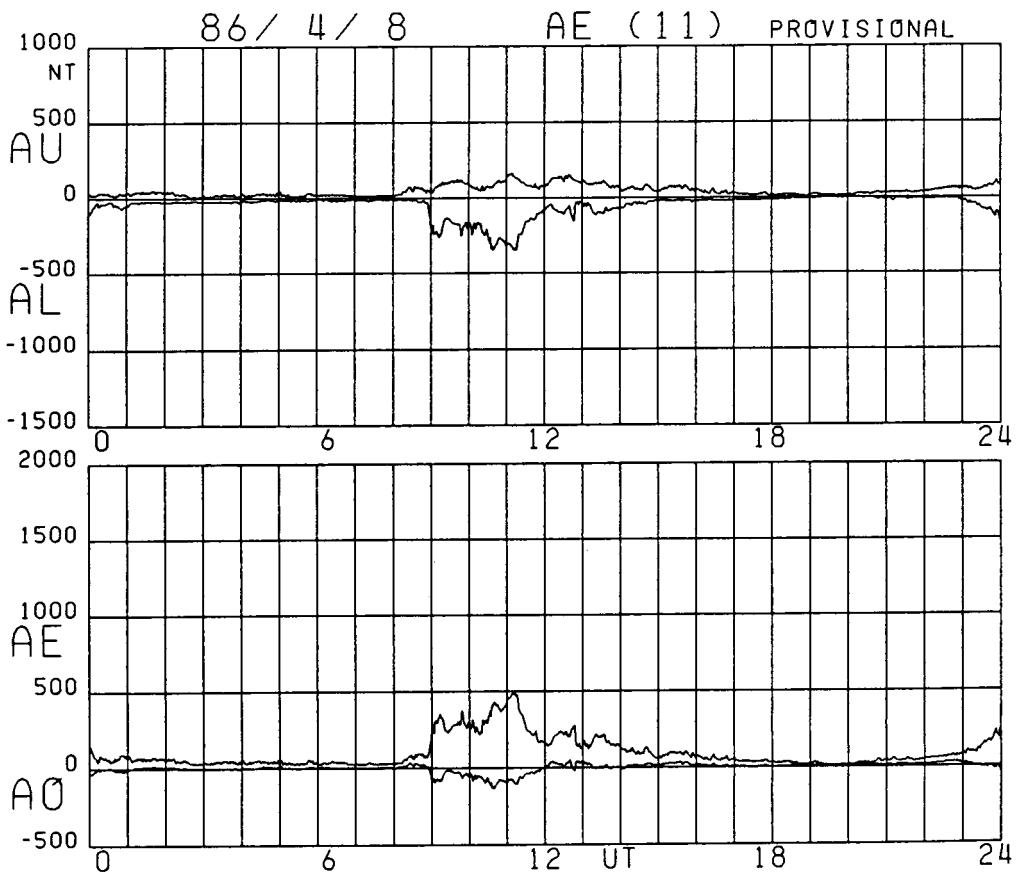
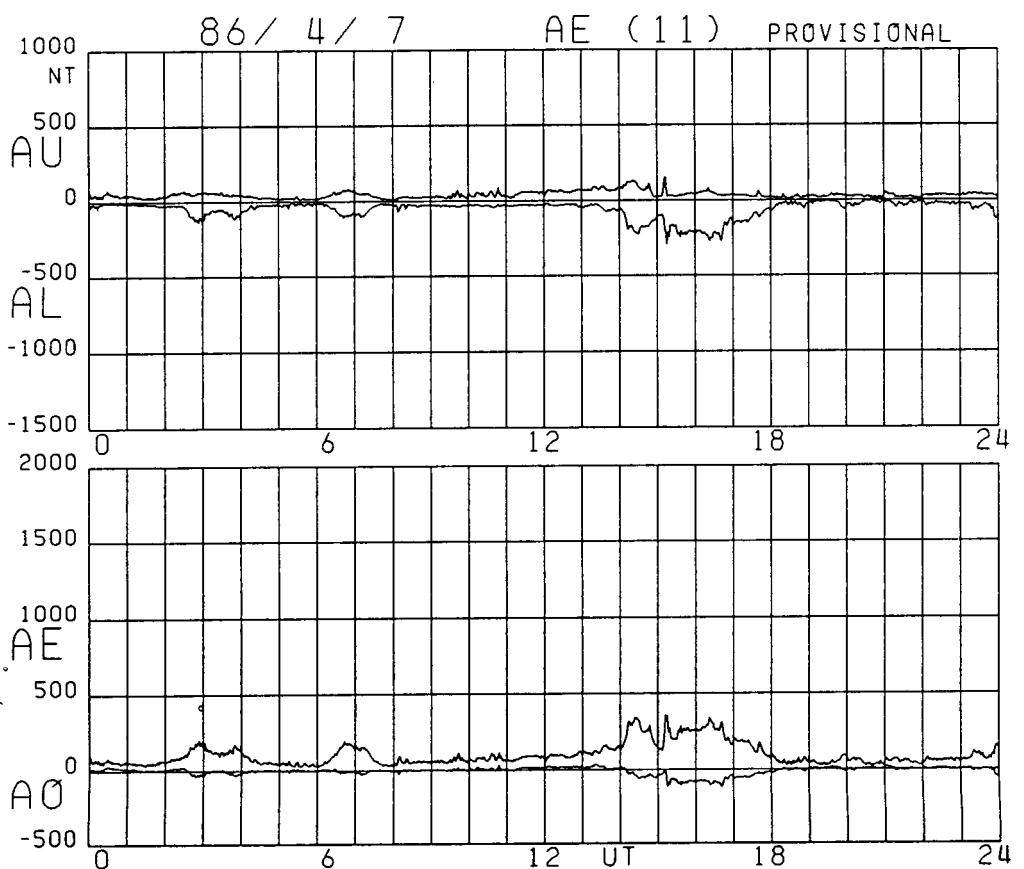
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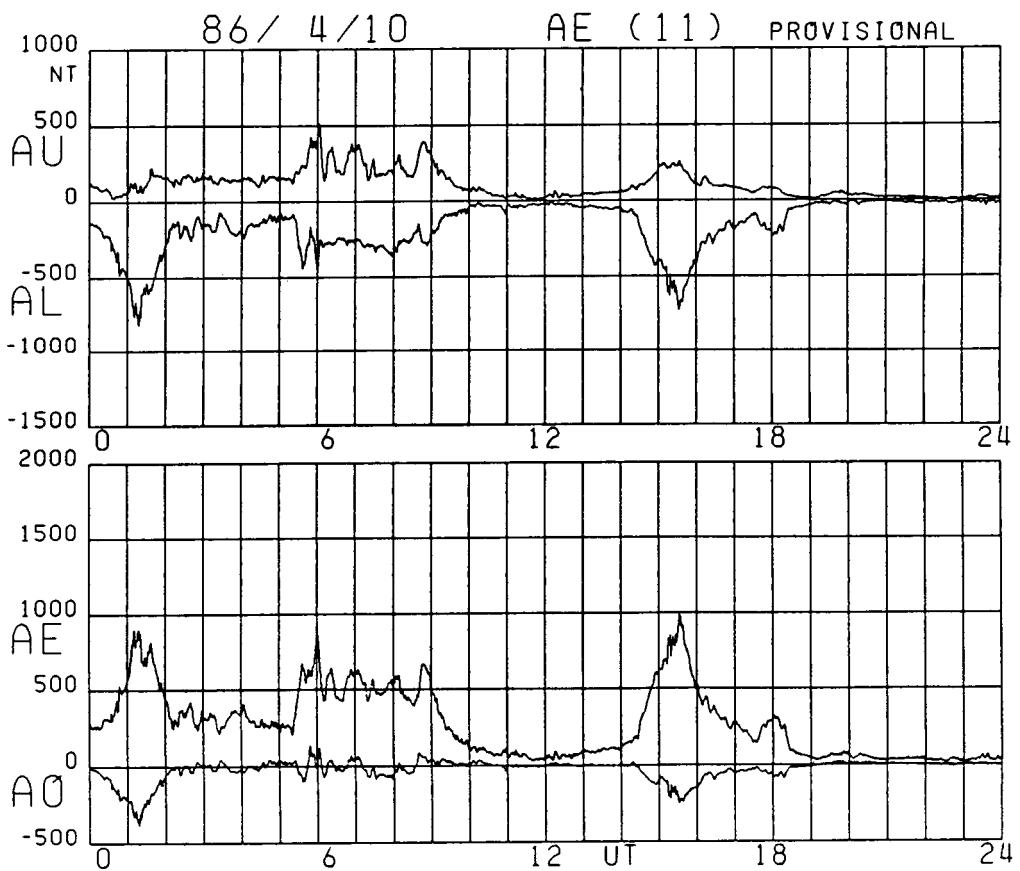
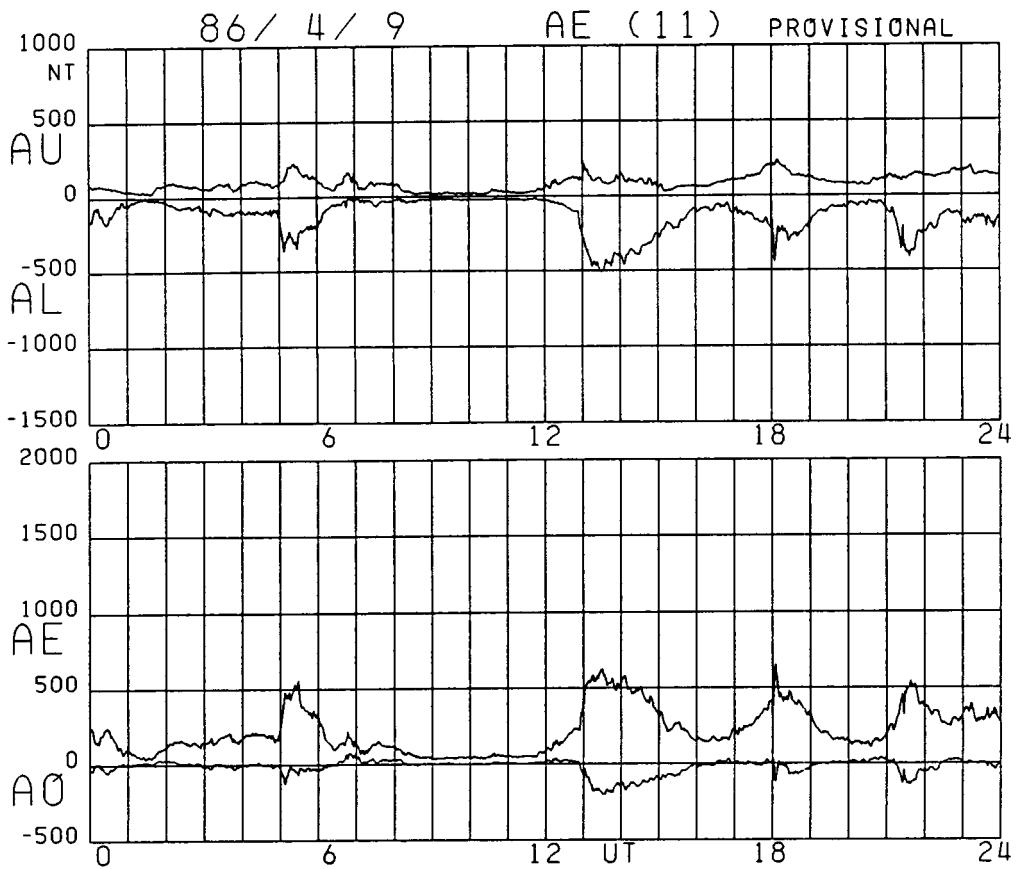
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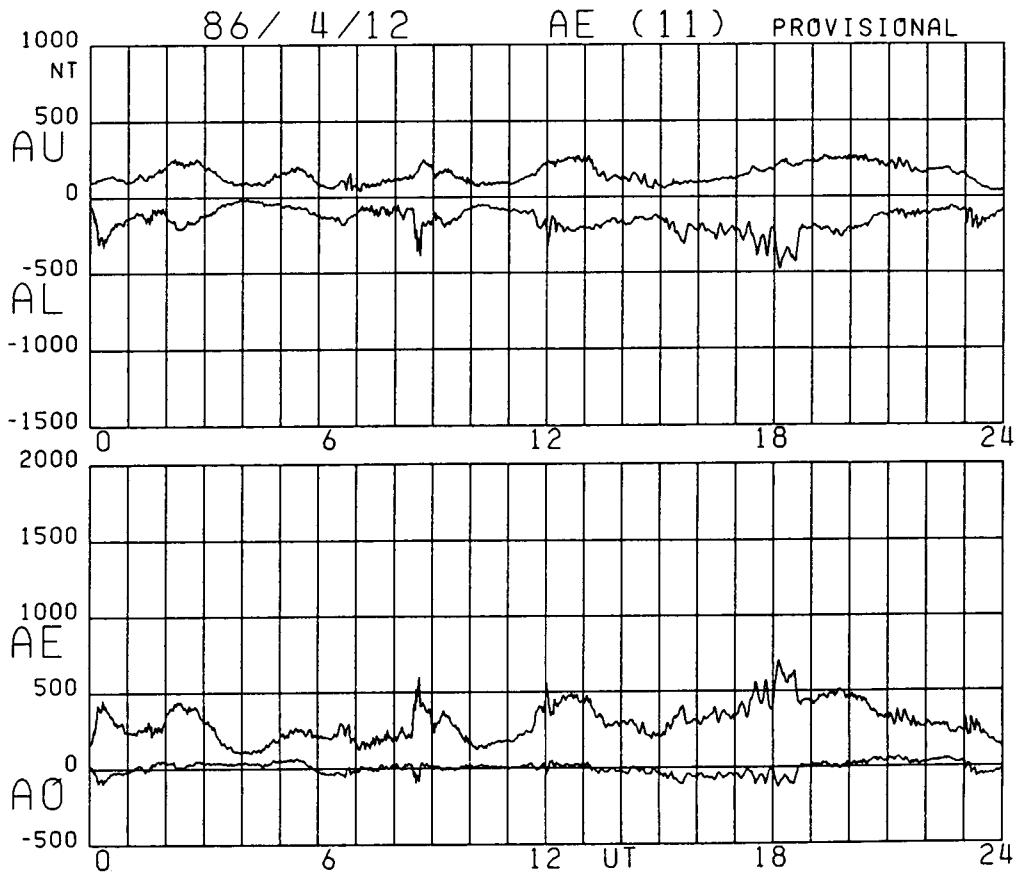
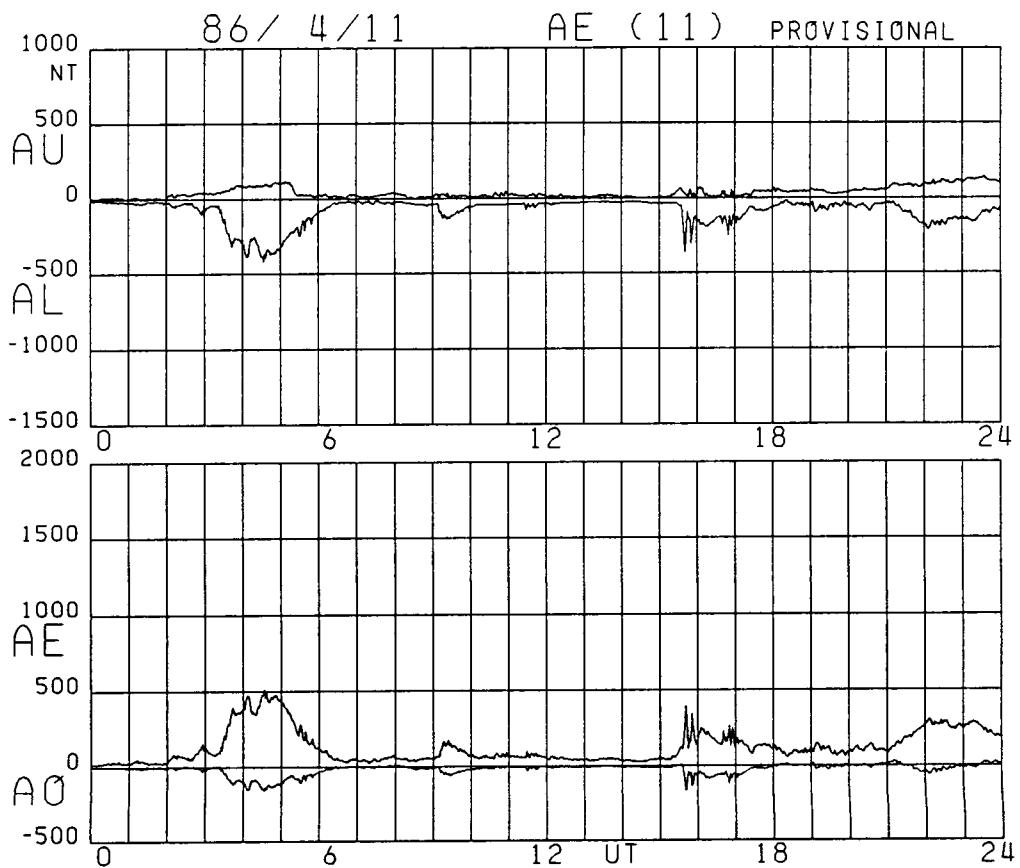
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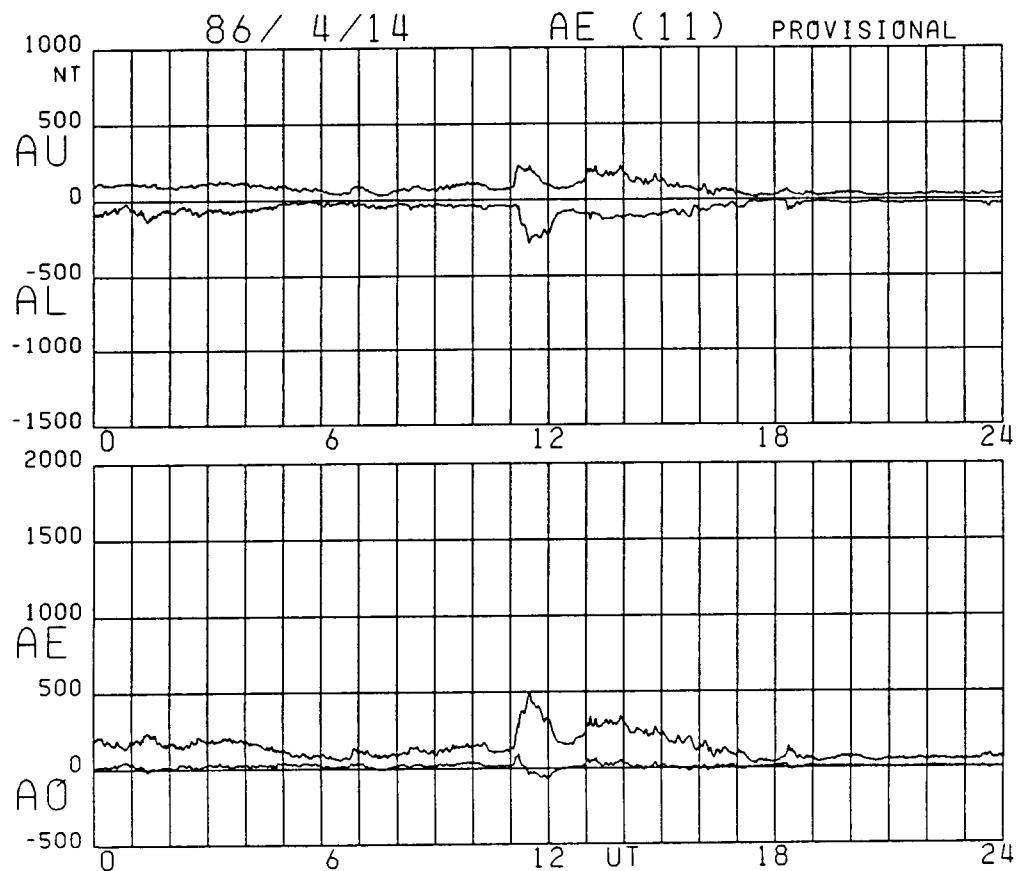
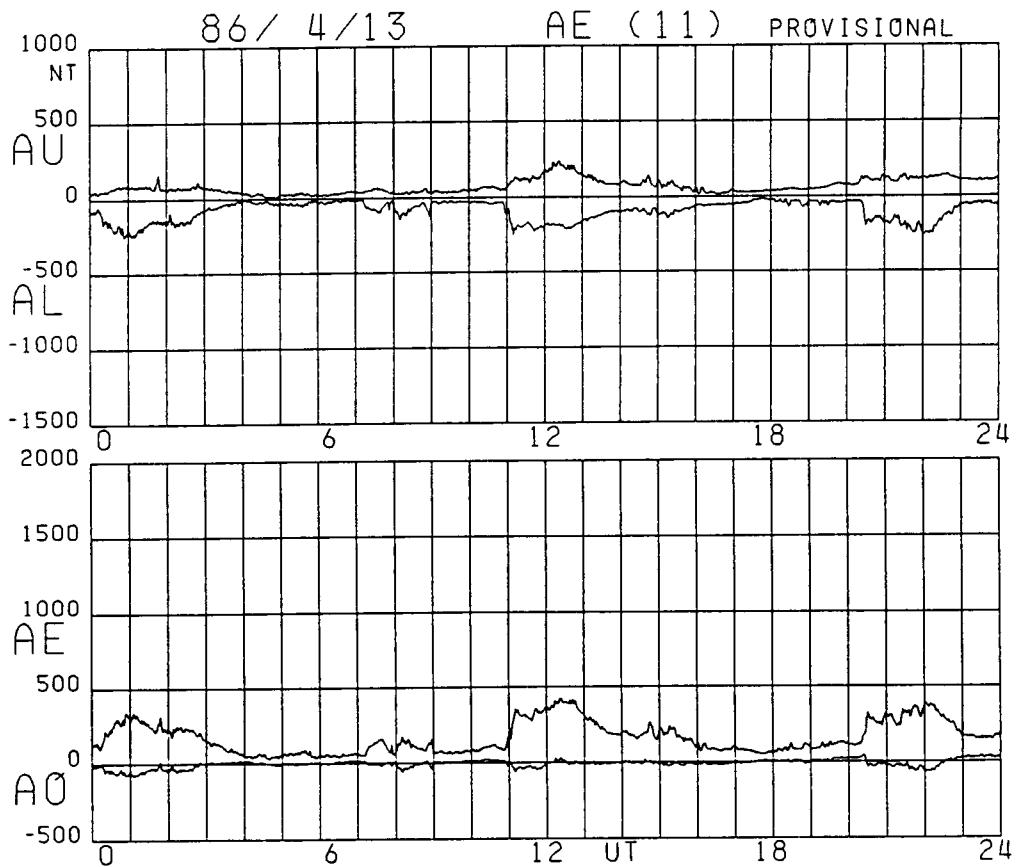
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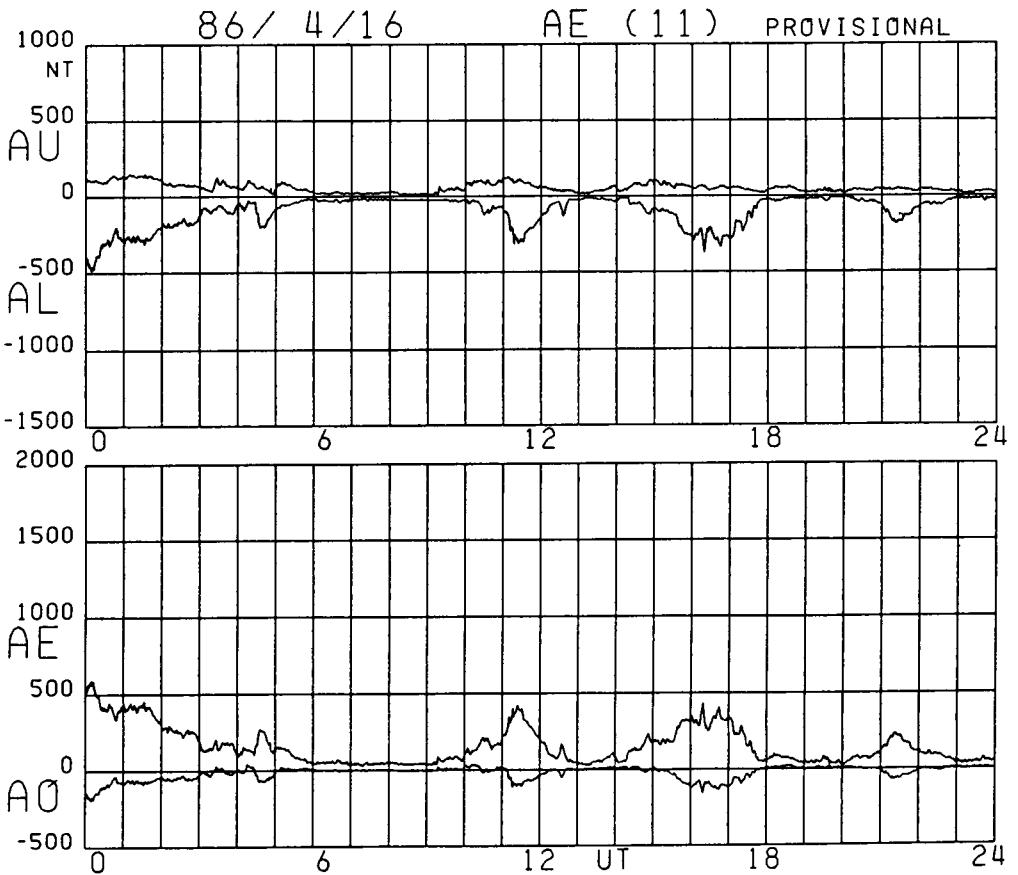
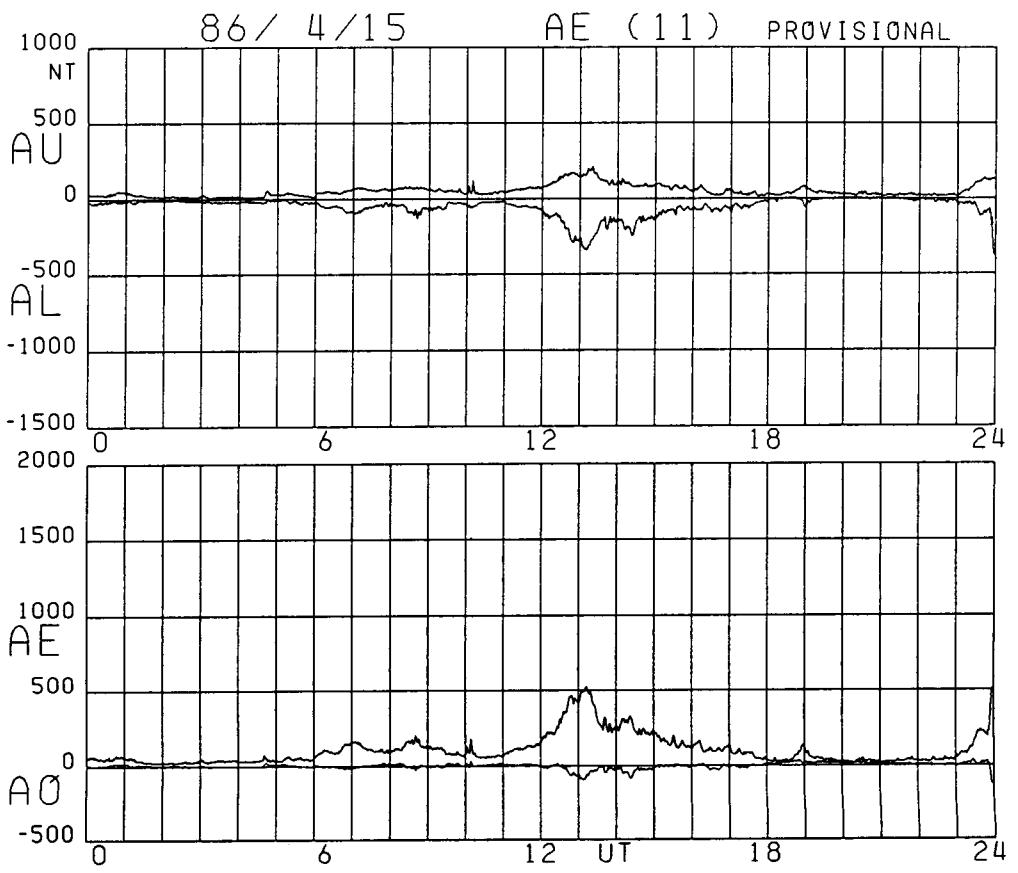
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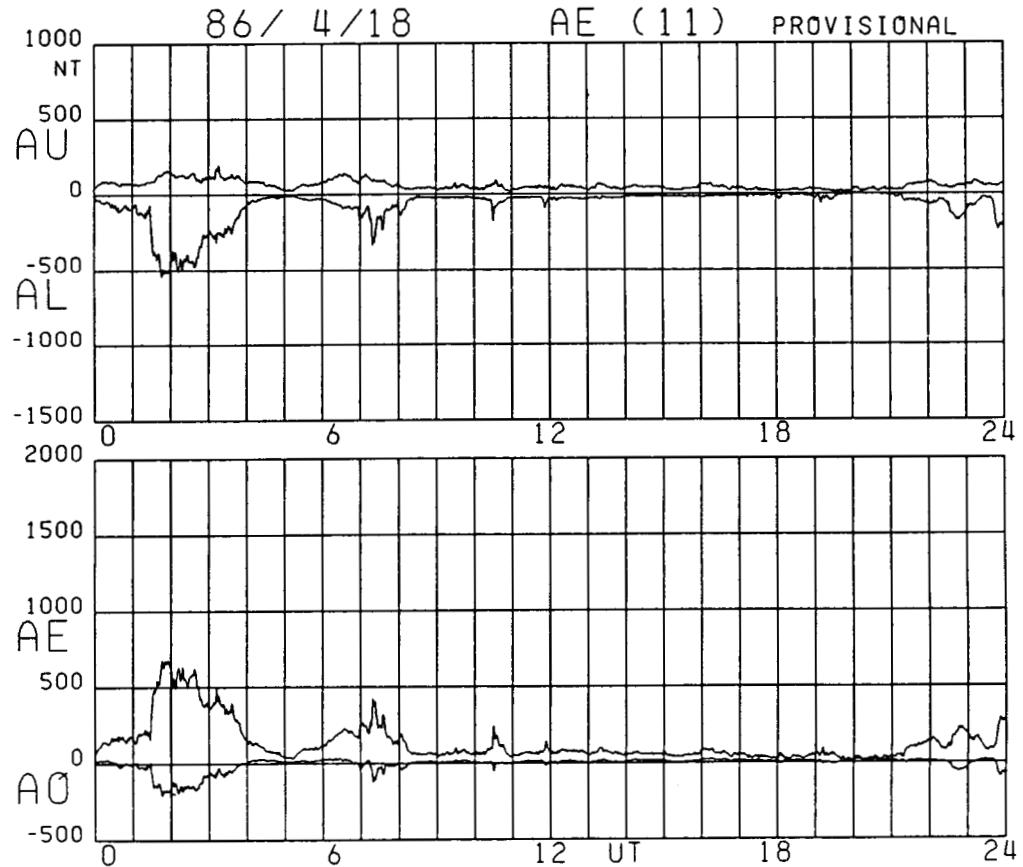
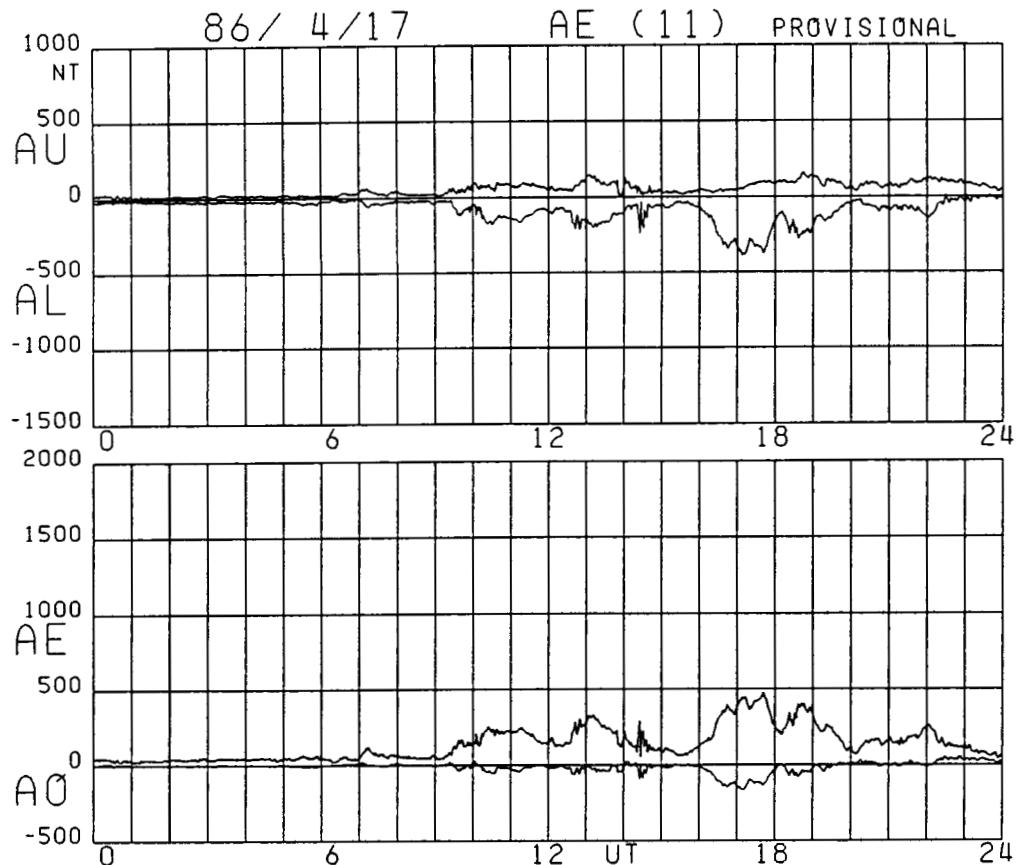
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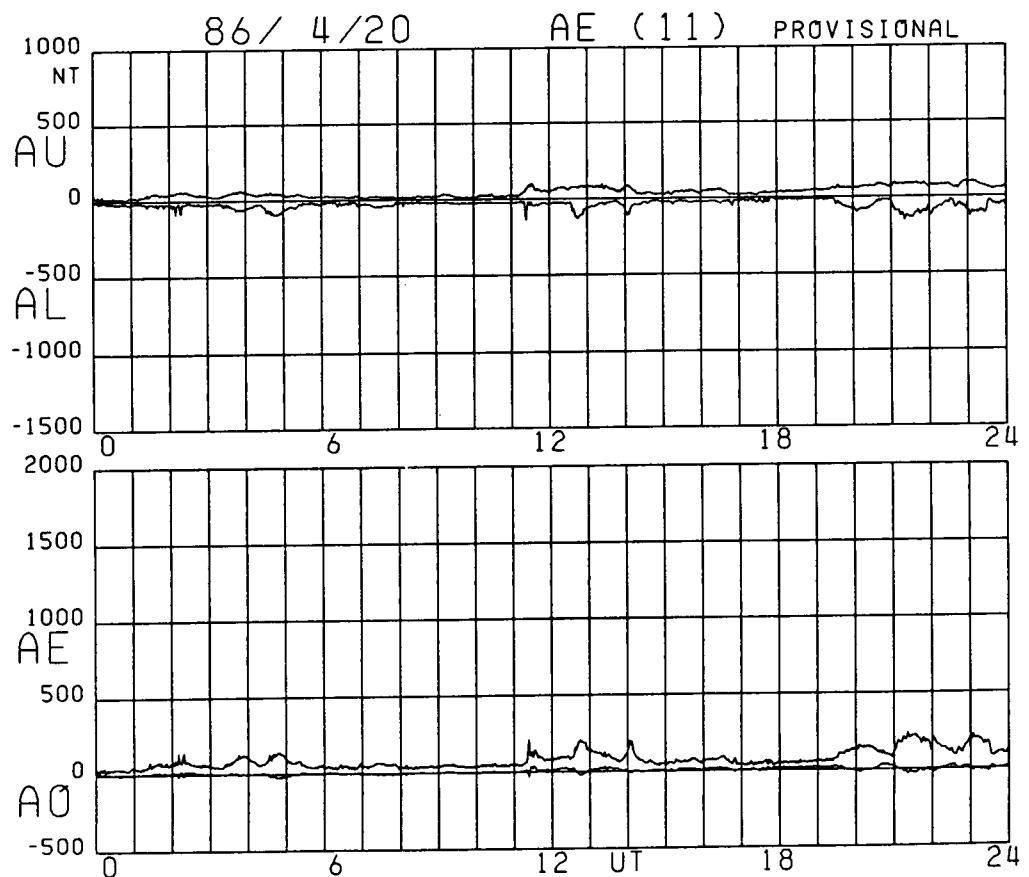
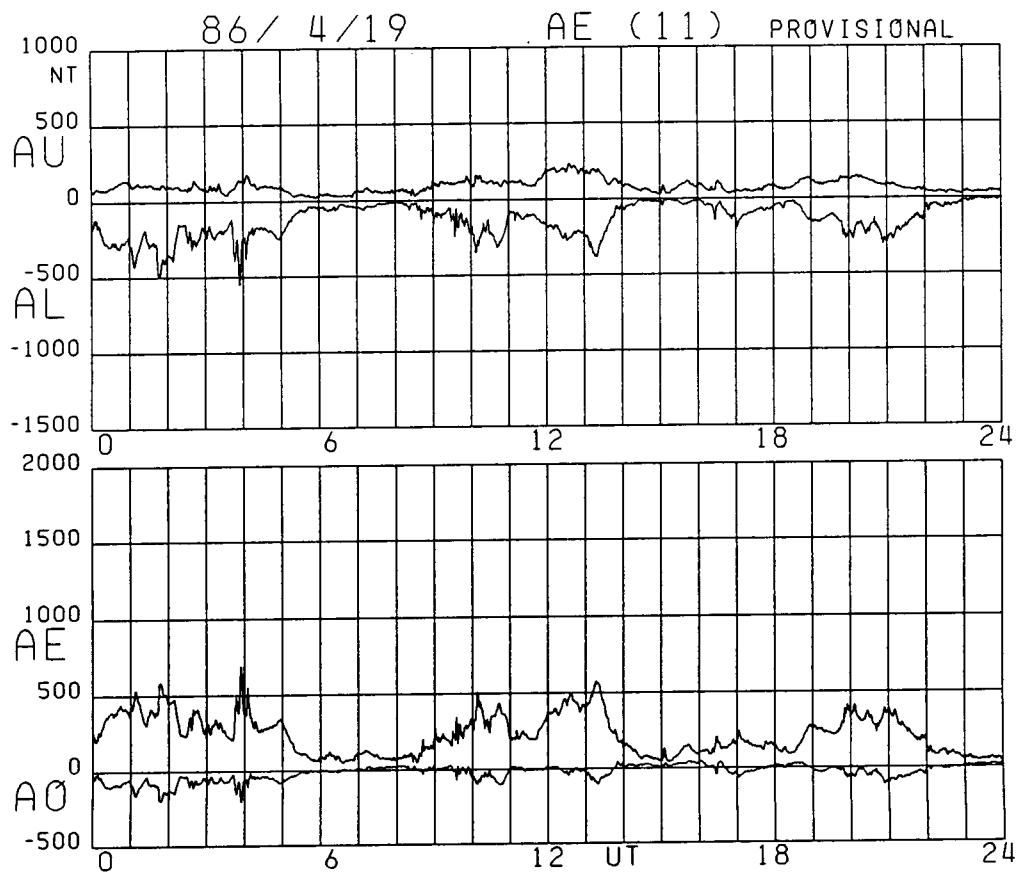
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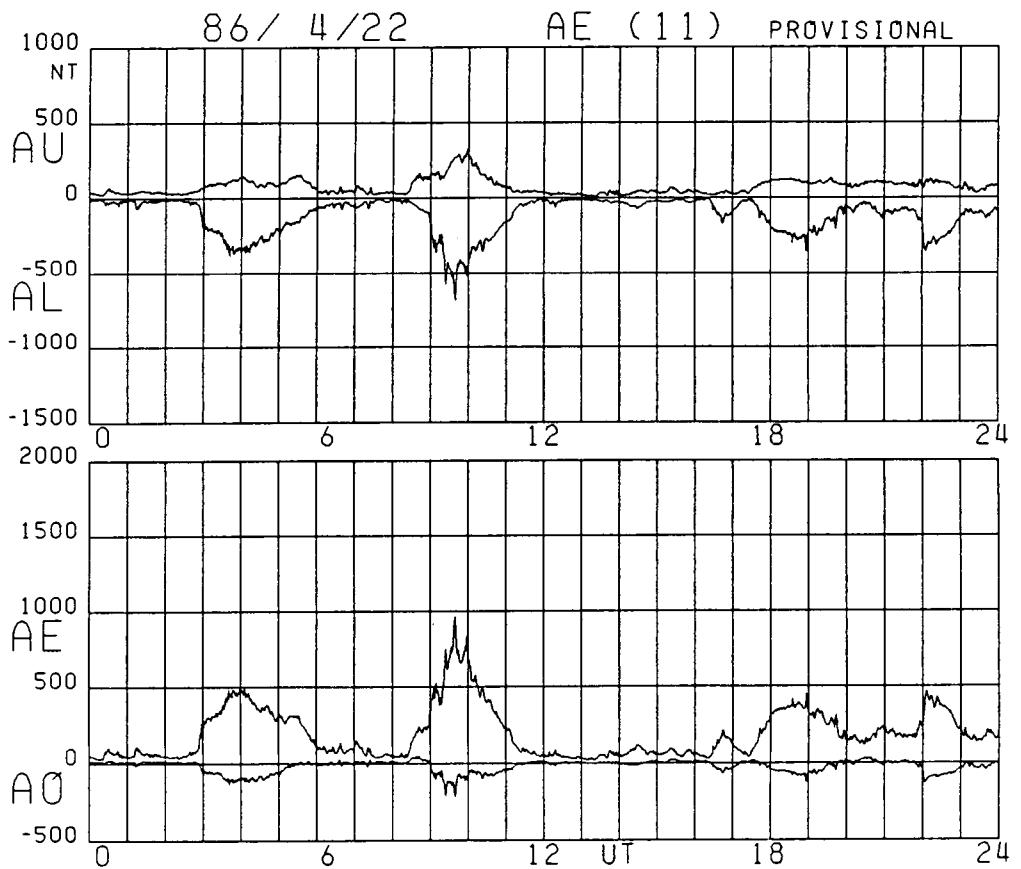
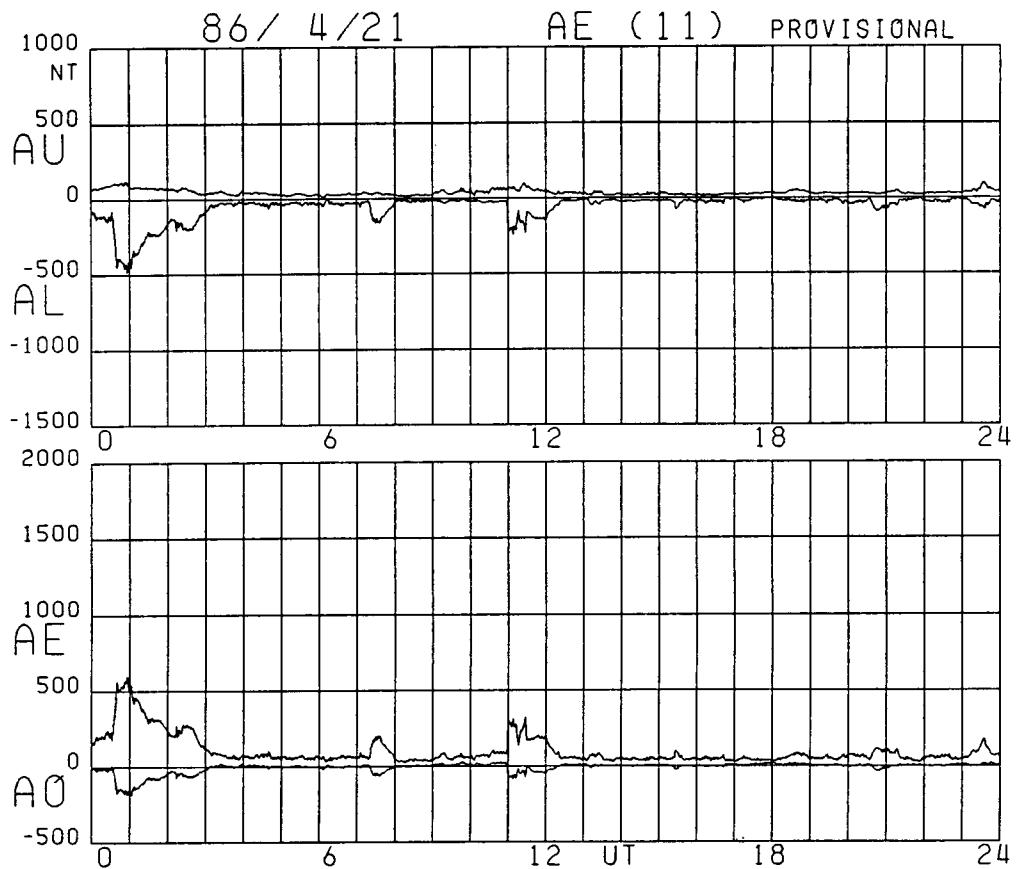
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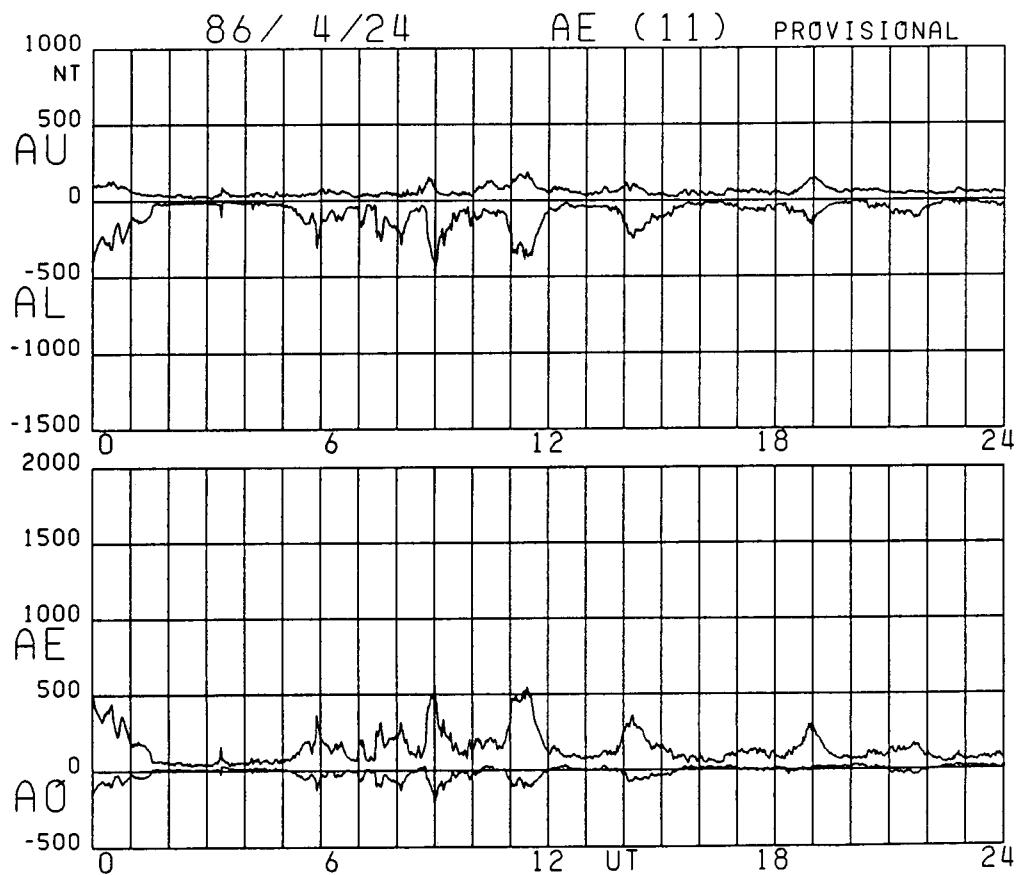
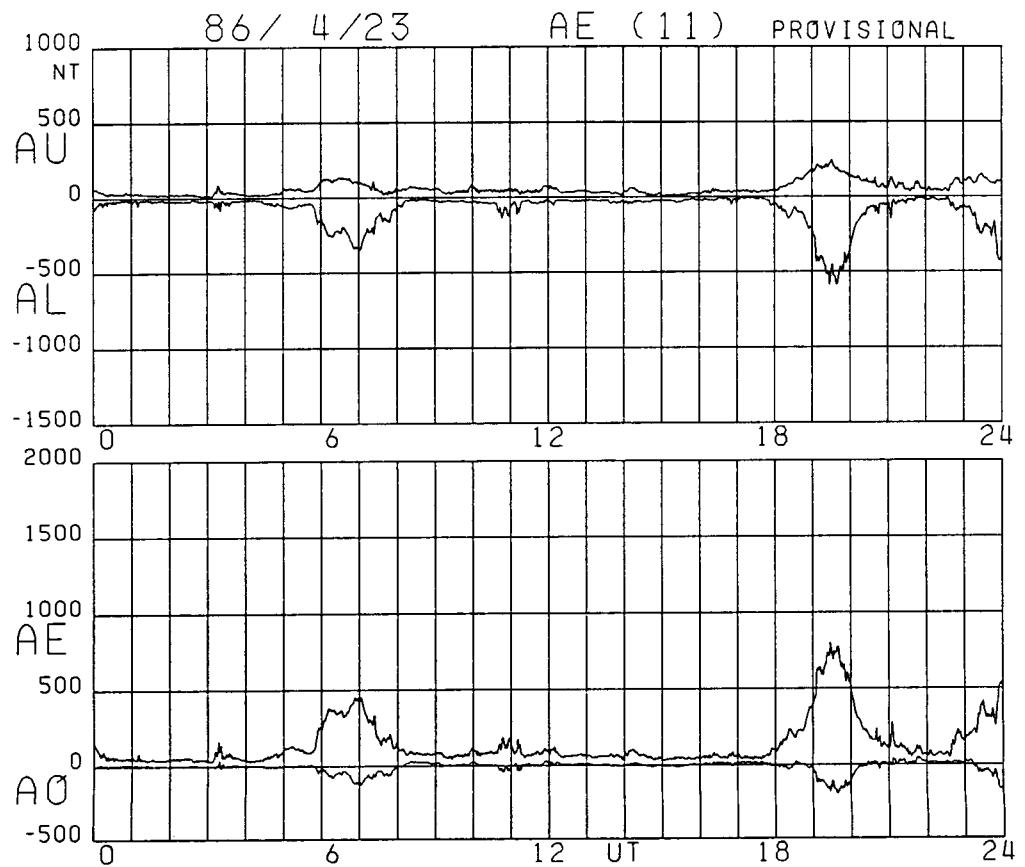
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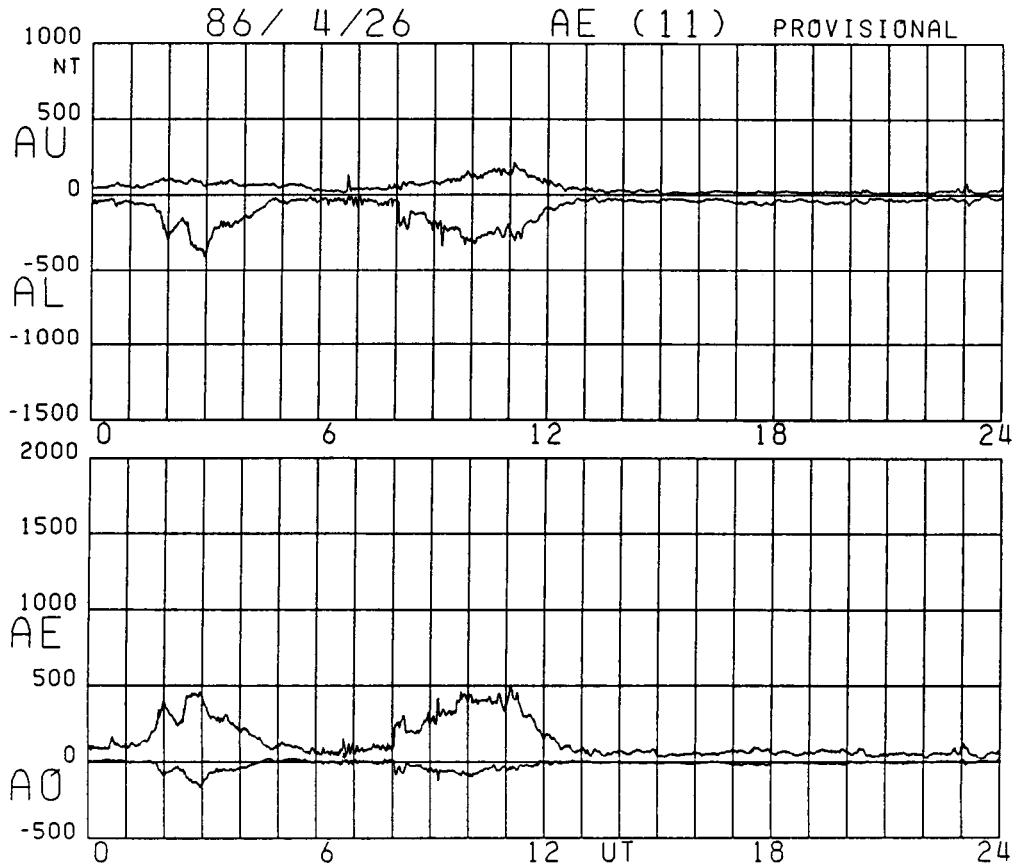
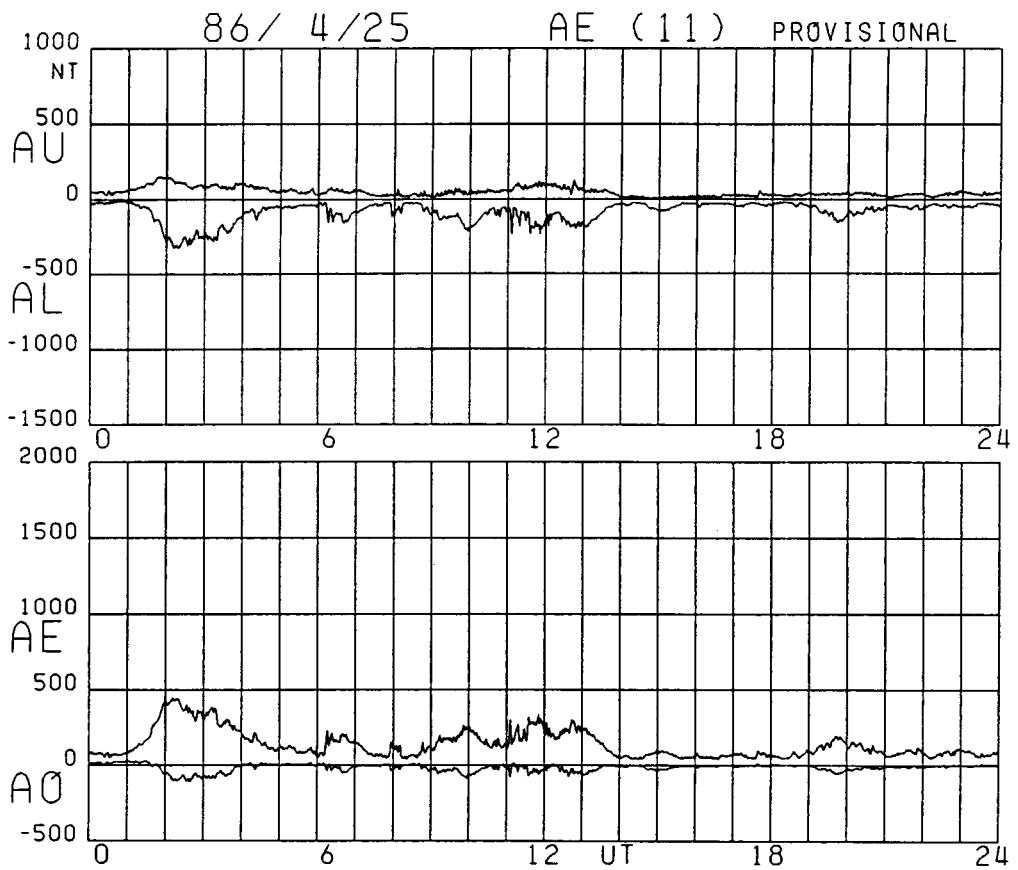
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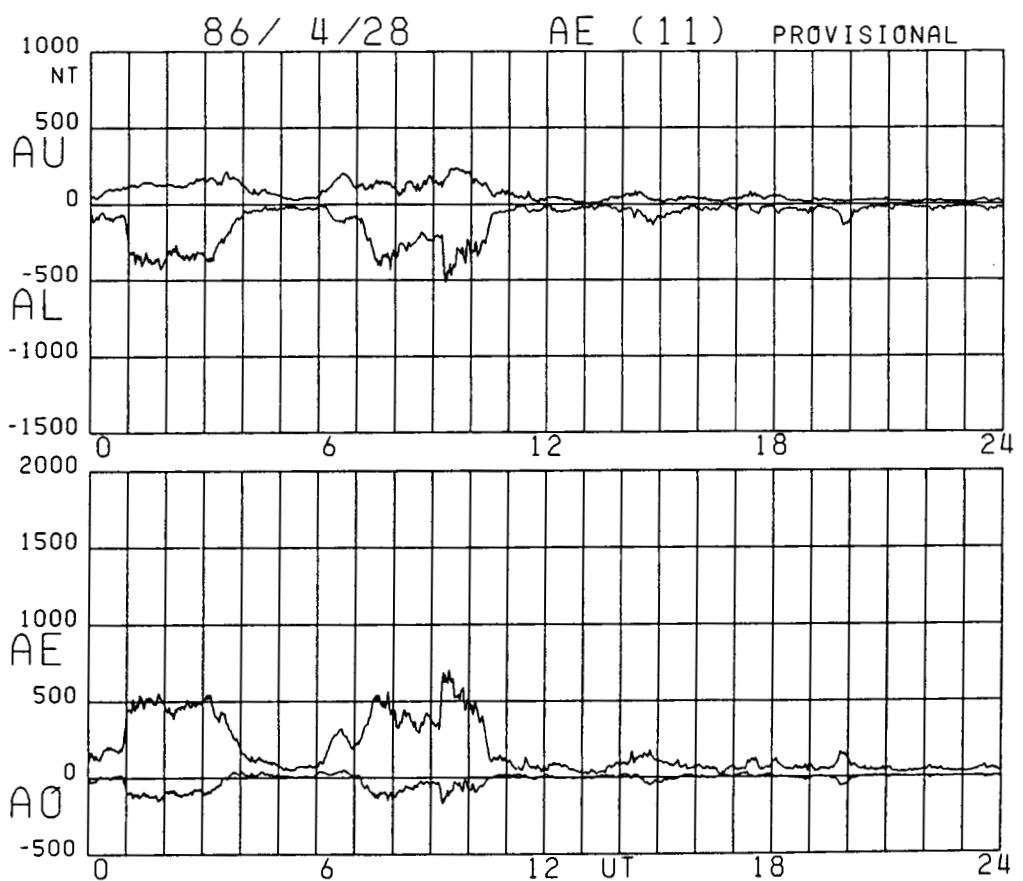
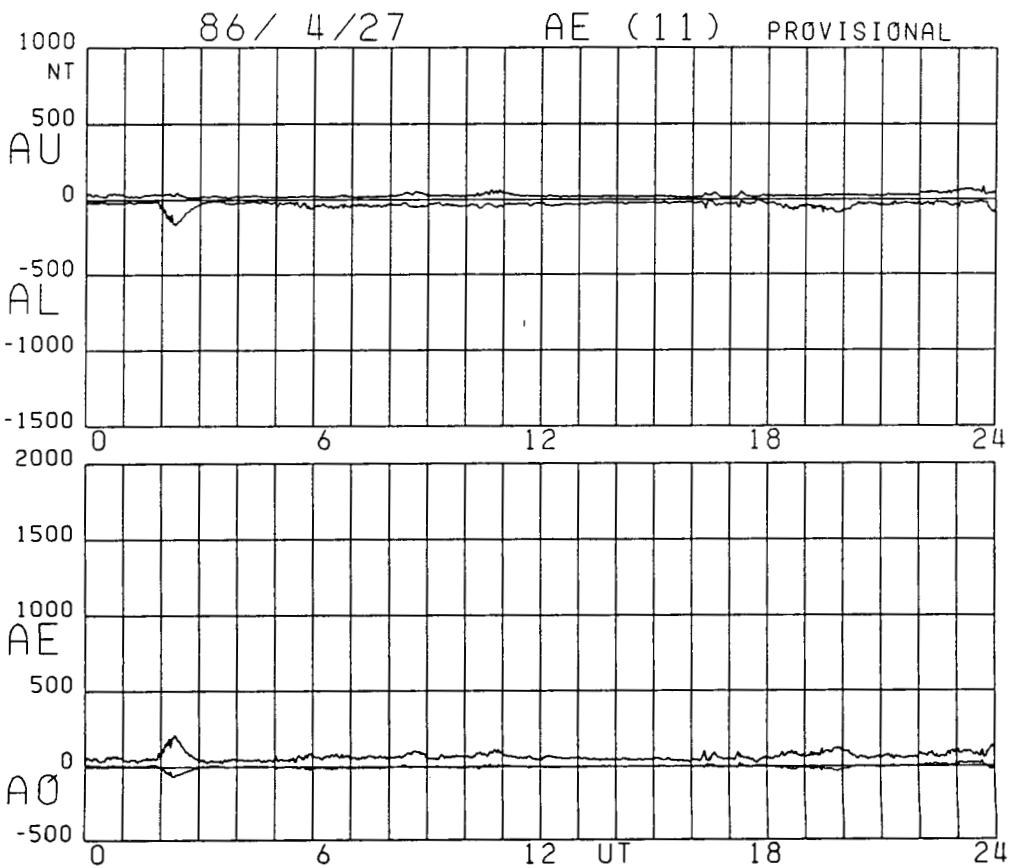
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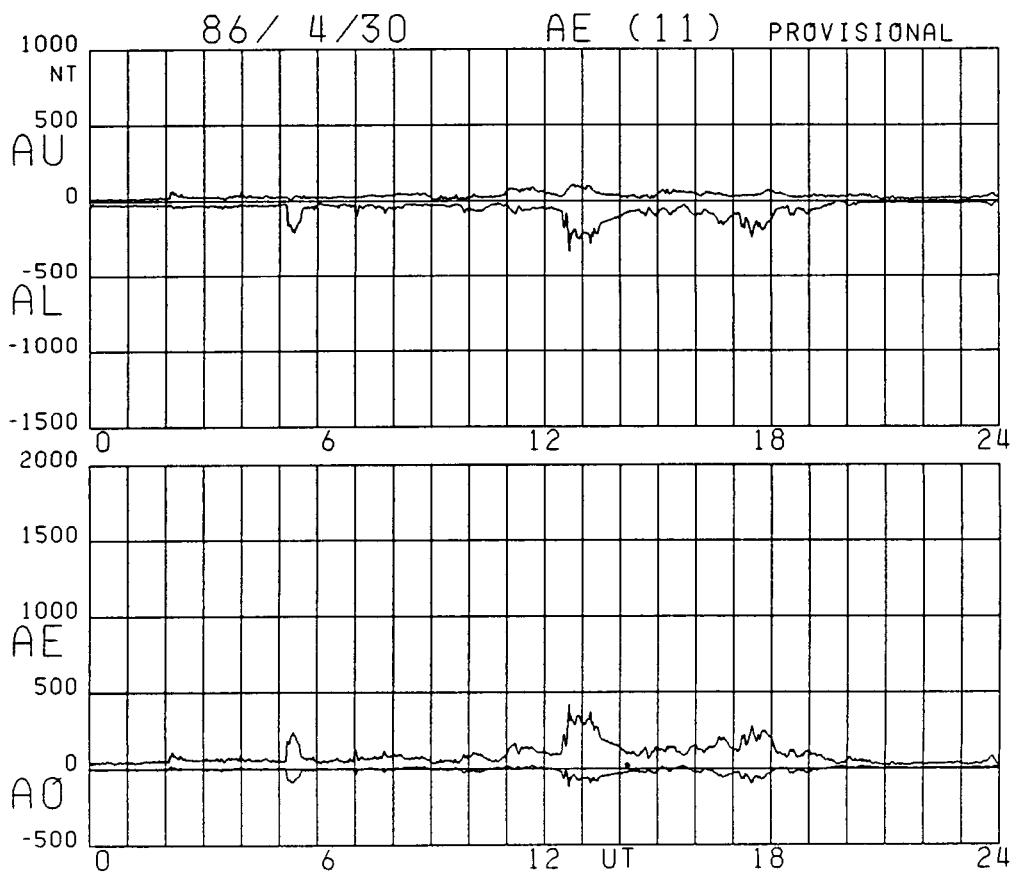
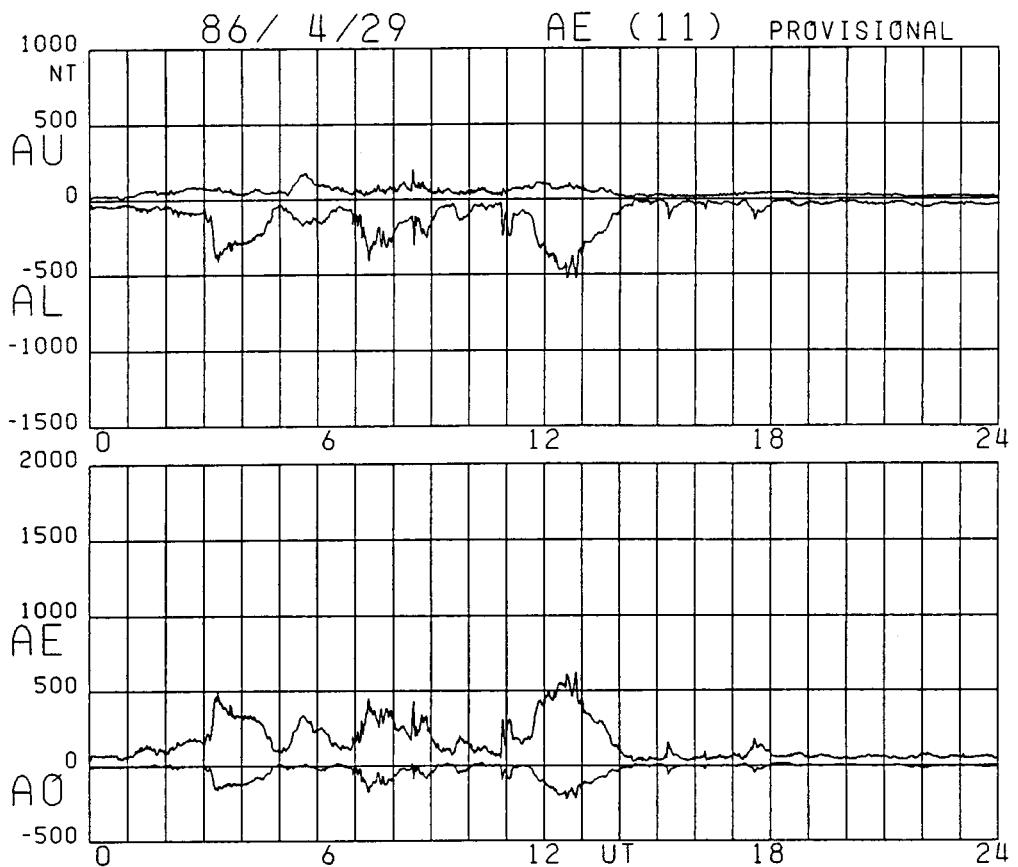
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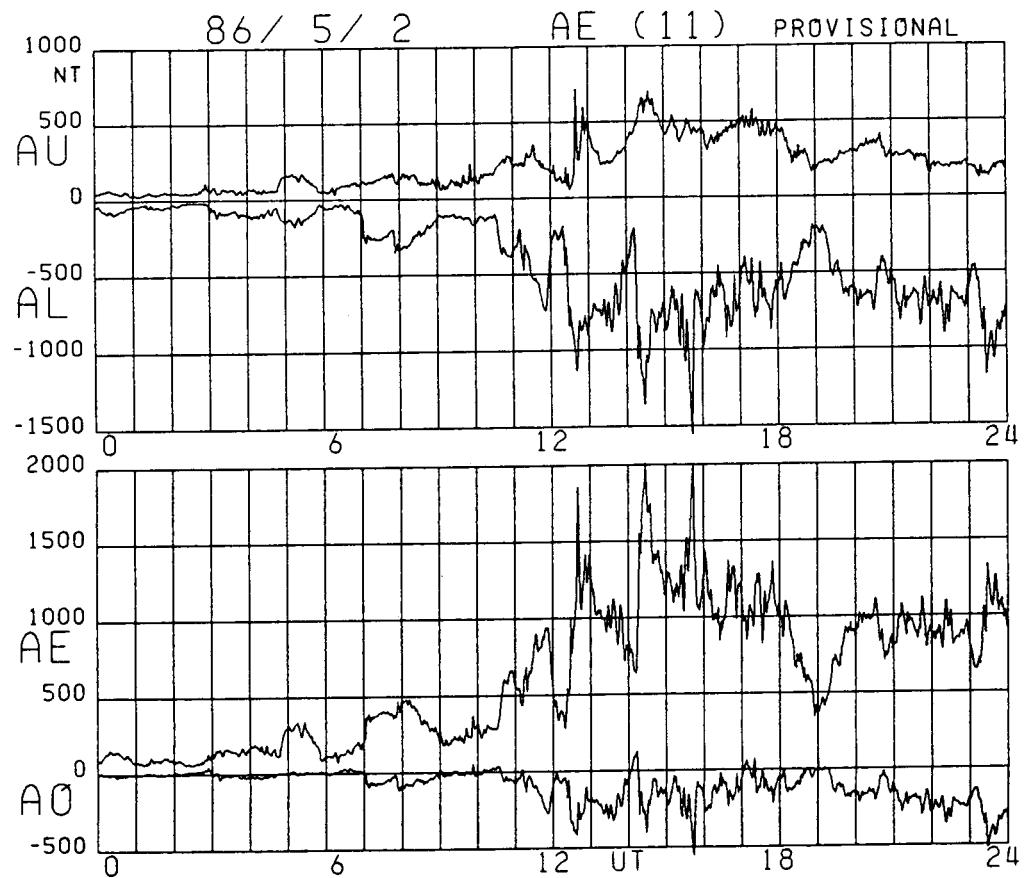
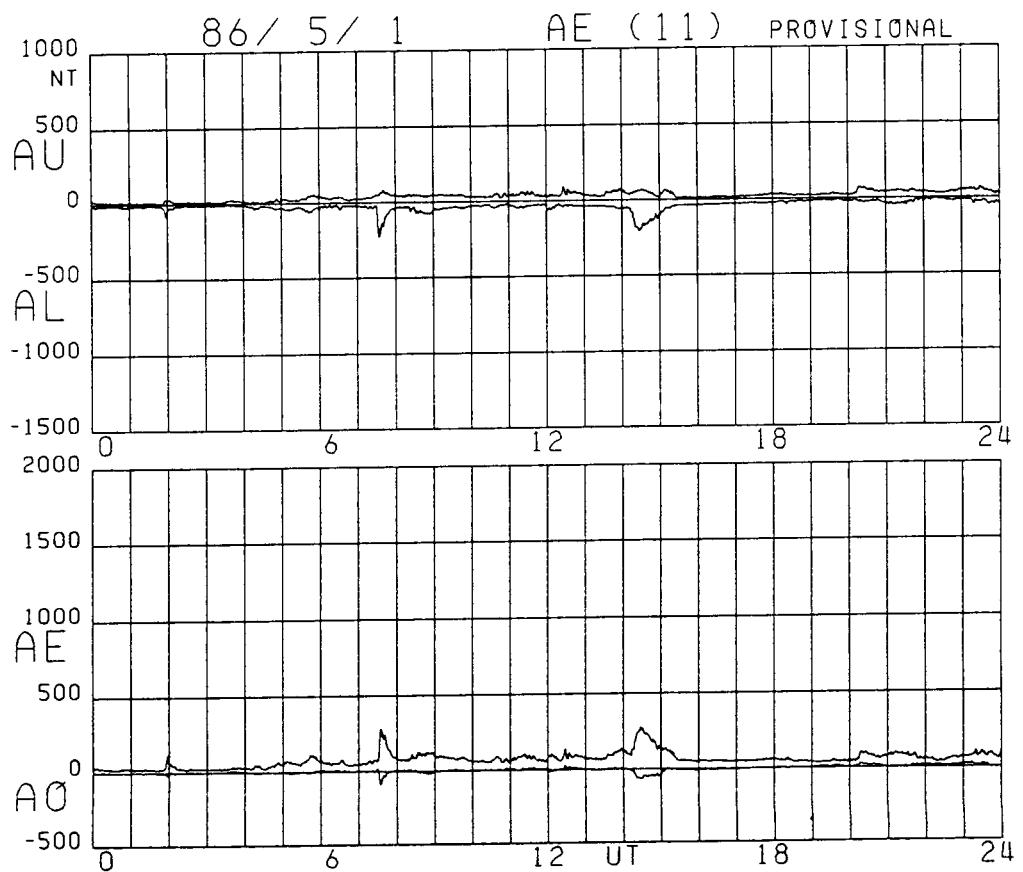
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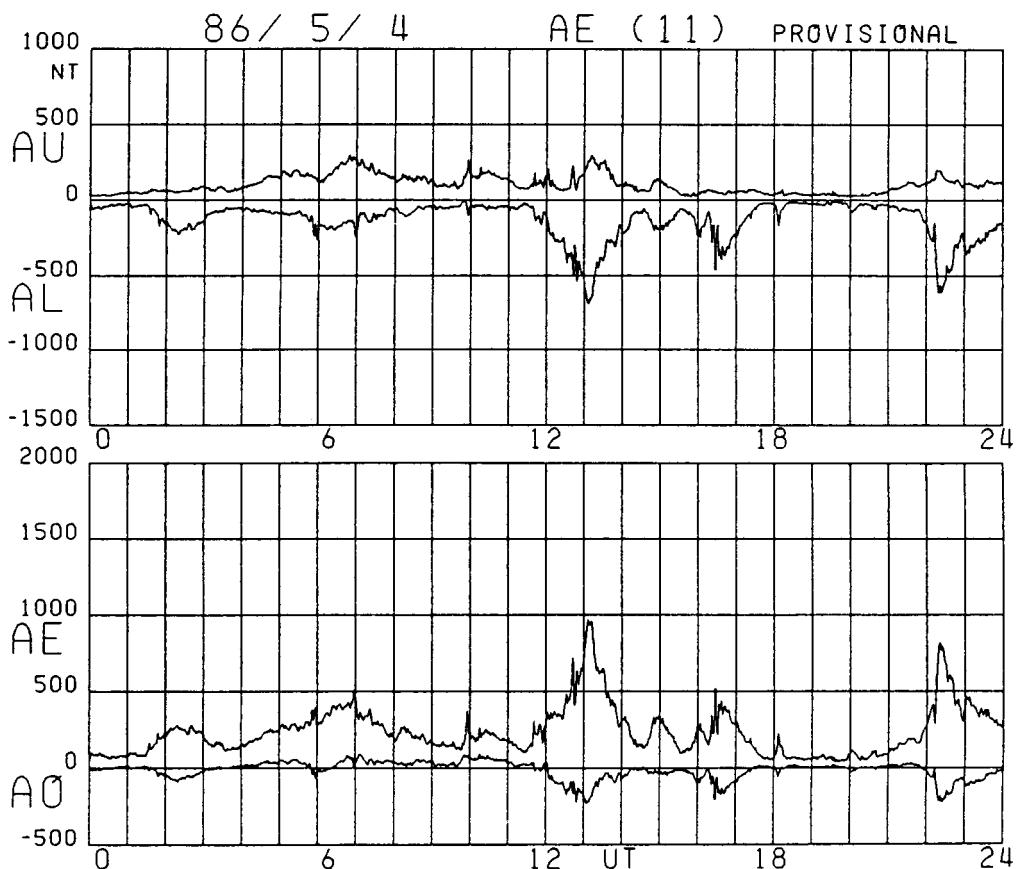
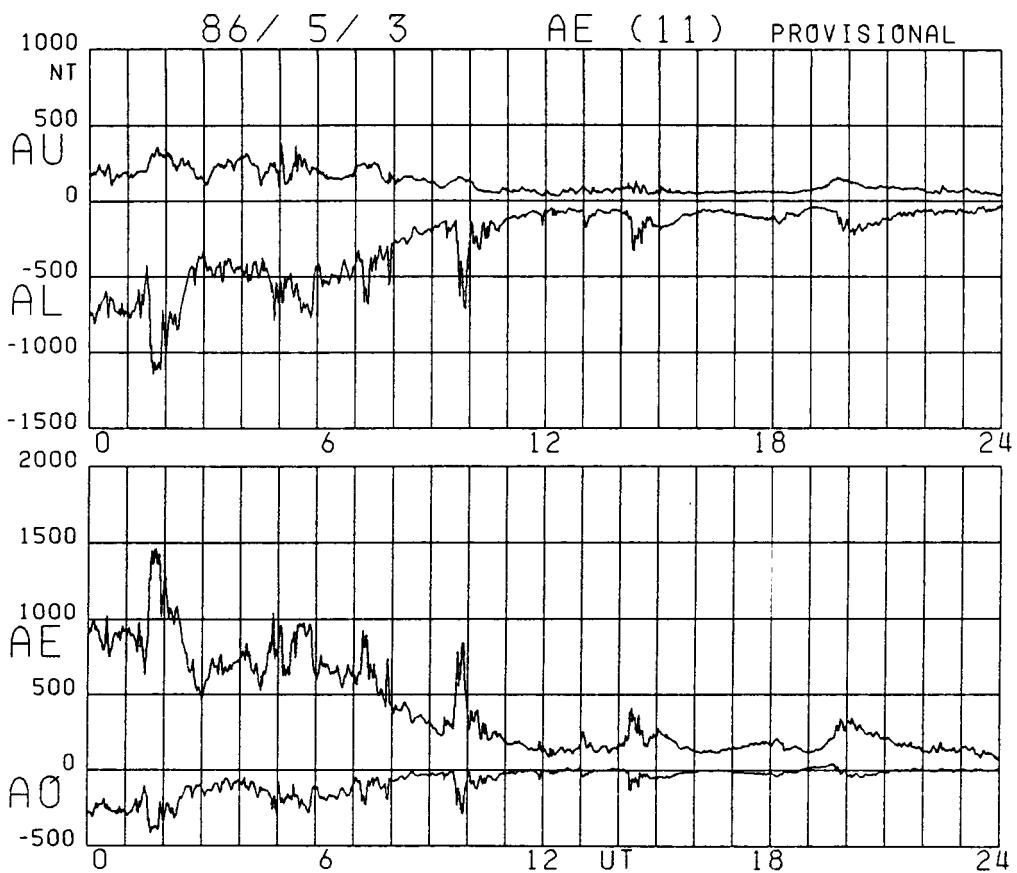
Prov.AE 8604 Fig.1-14



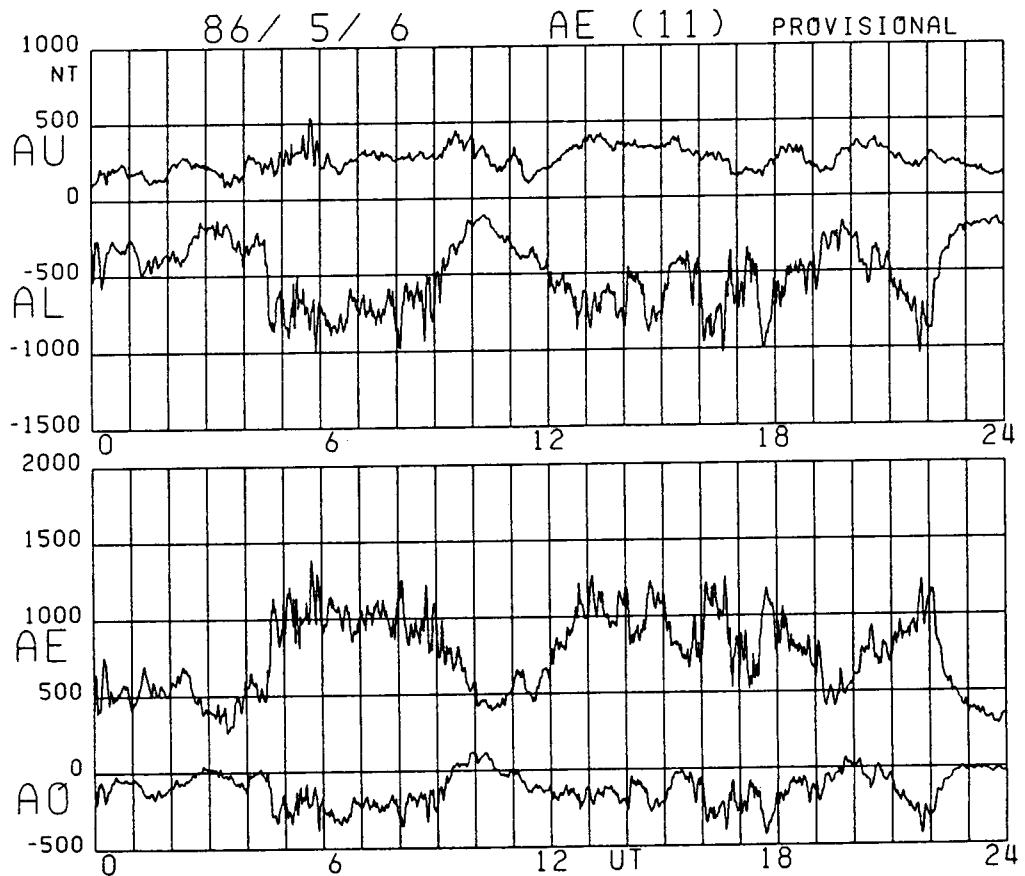
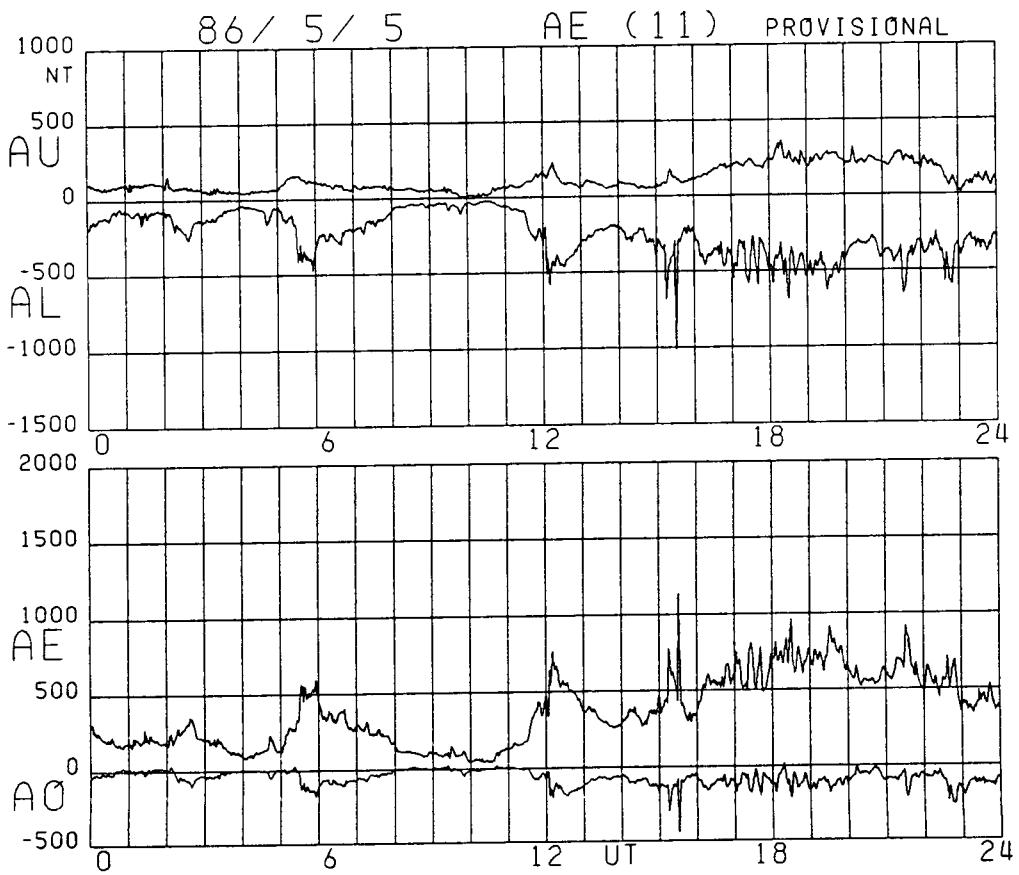
Prov.AE 8604 Fig.1-15



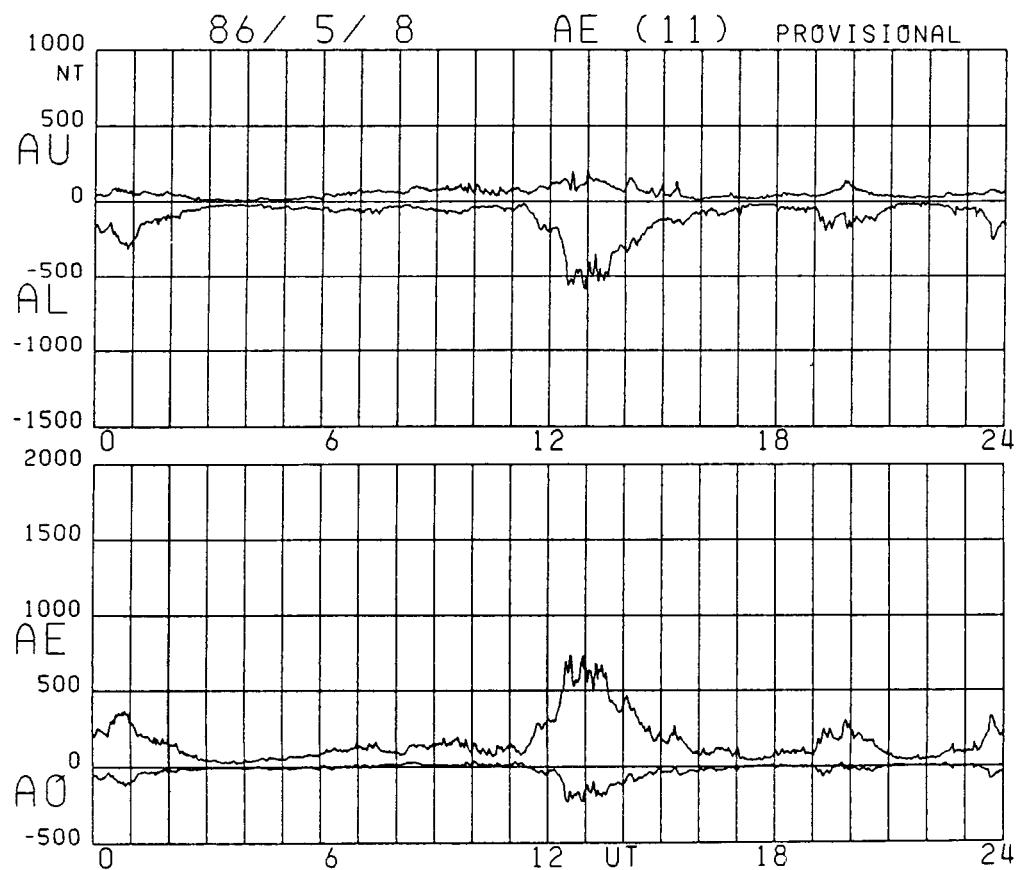
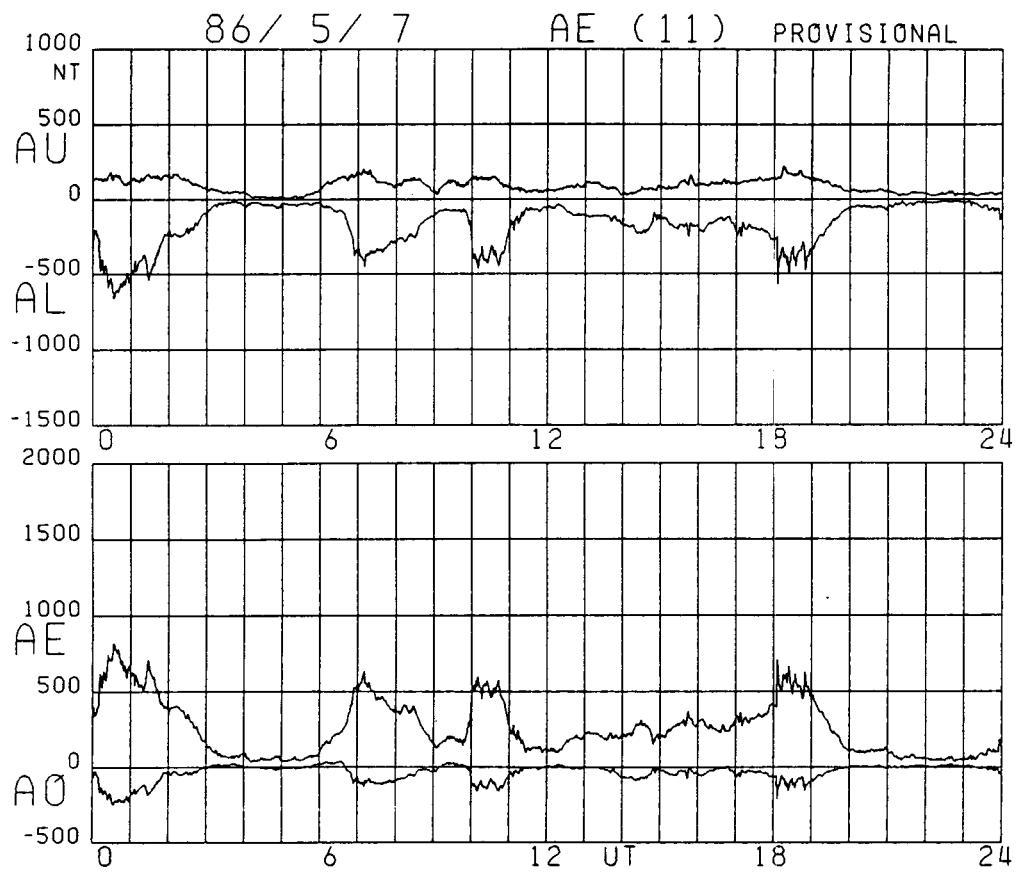
Prov.AE 8605 Fig.1- 1



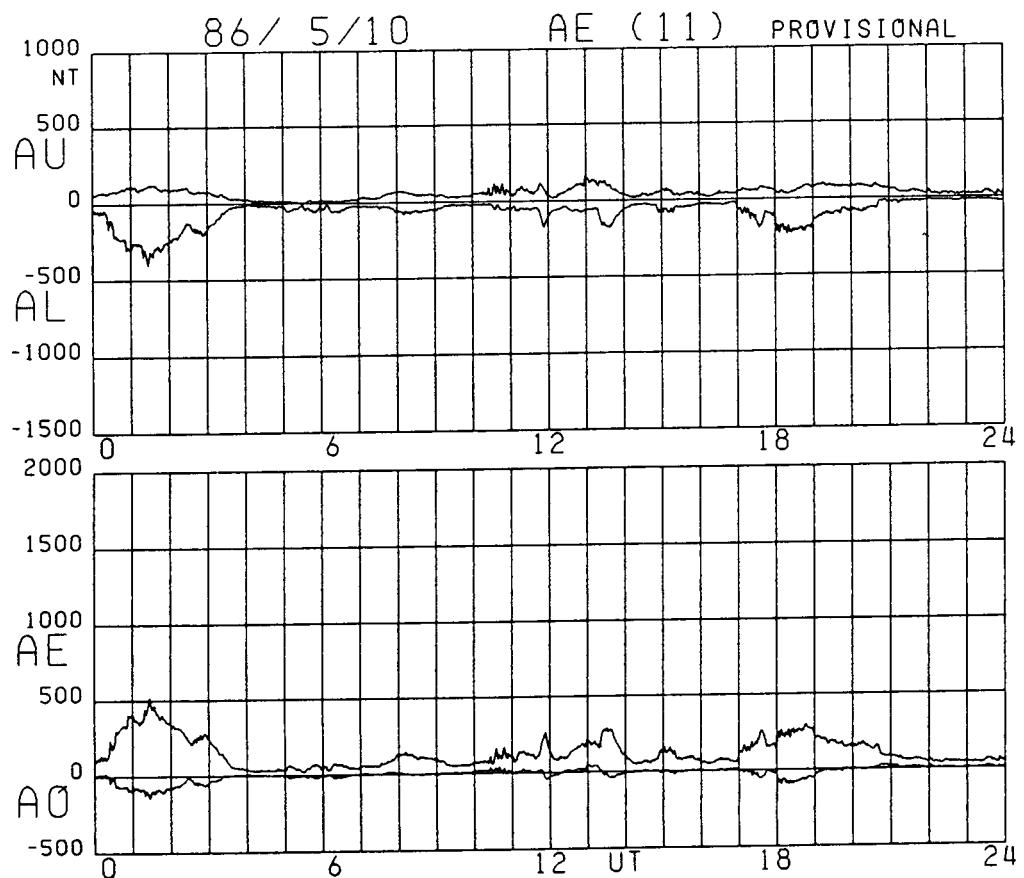
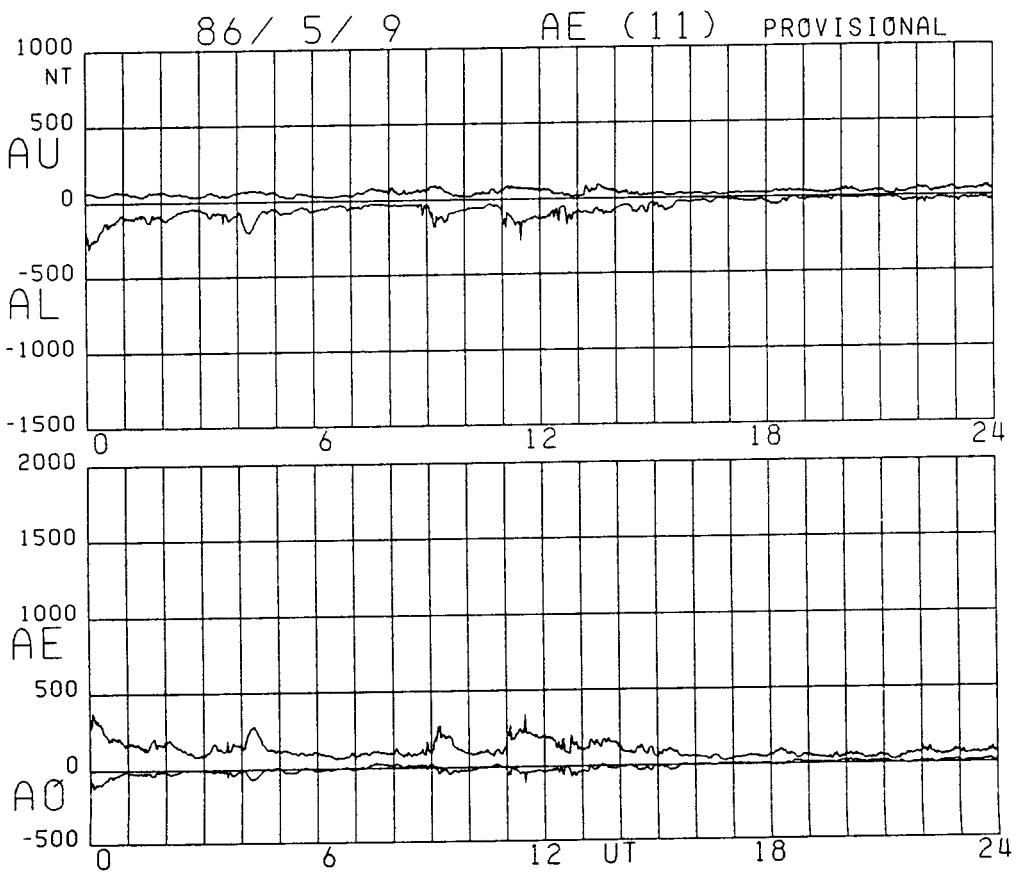
Prov.AE 8605 Fig.1- 2



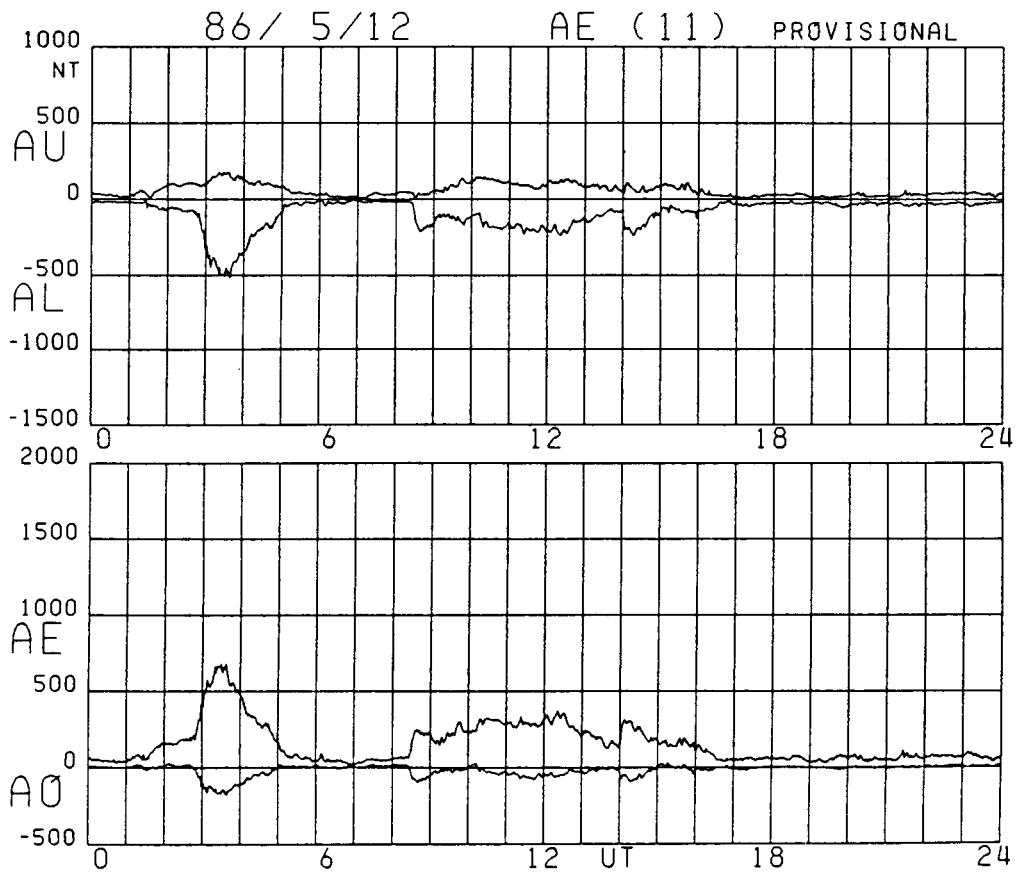
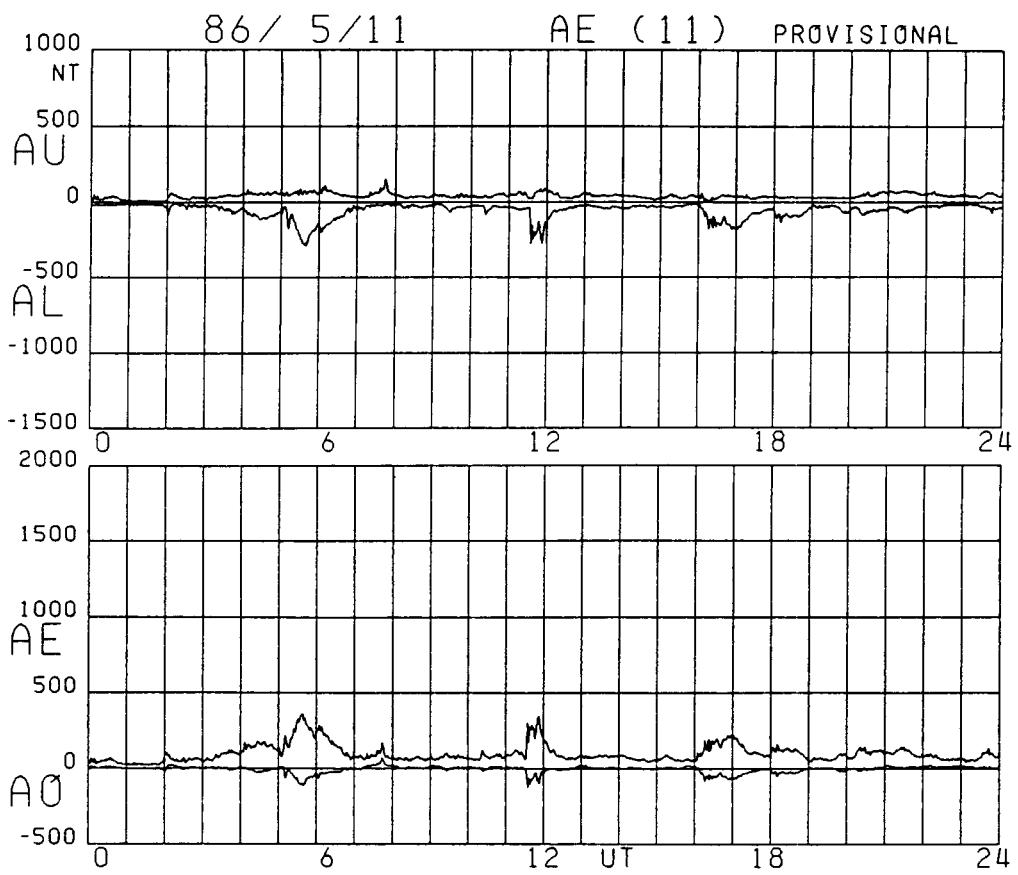
Prov.AE 8605 Fig.1- 3



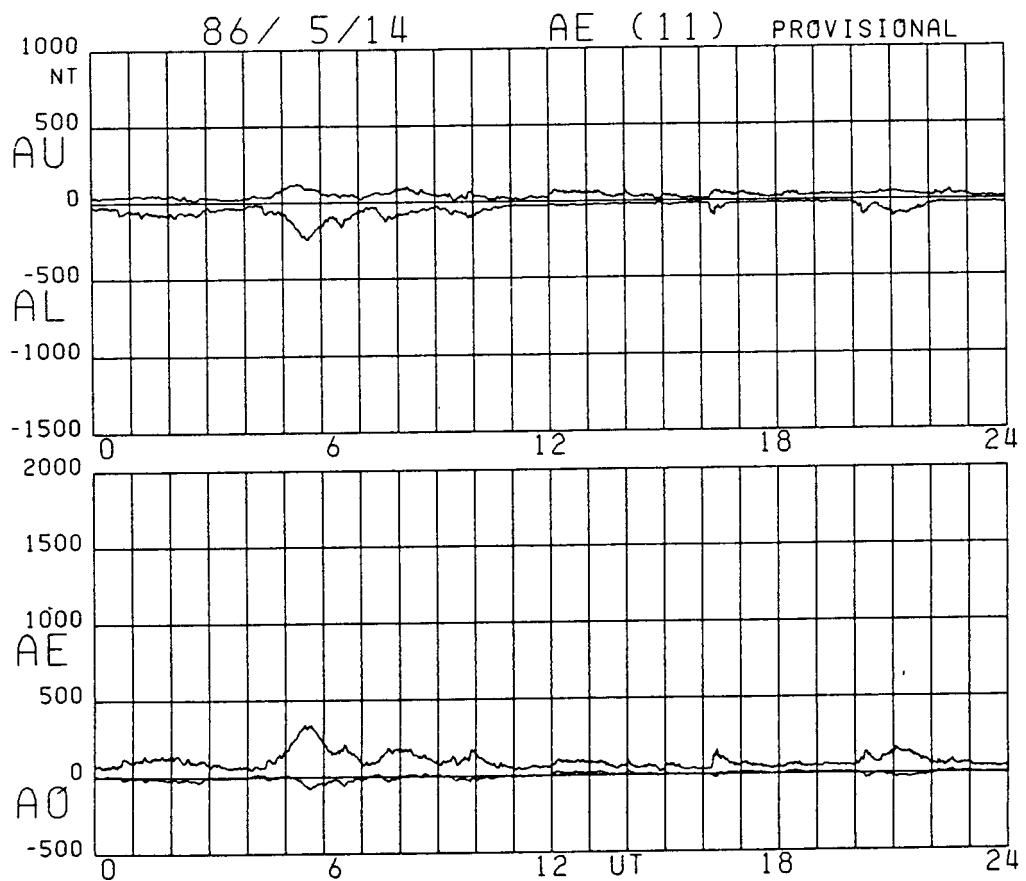
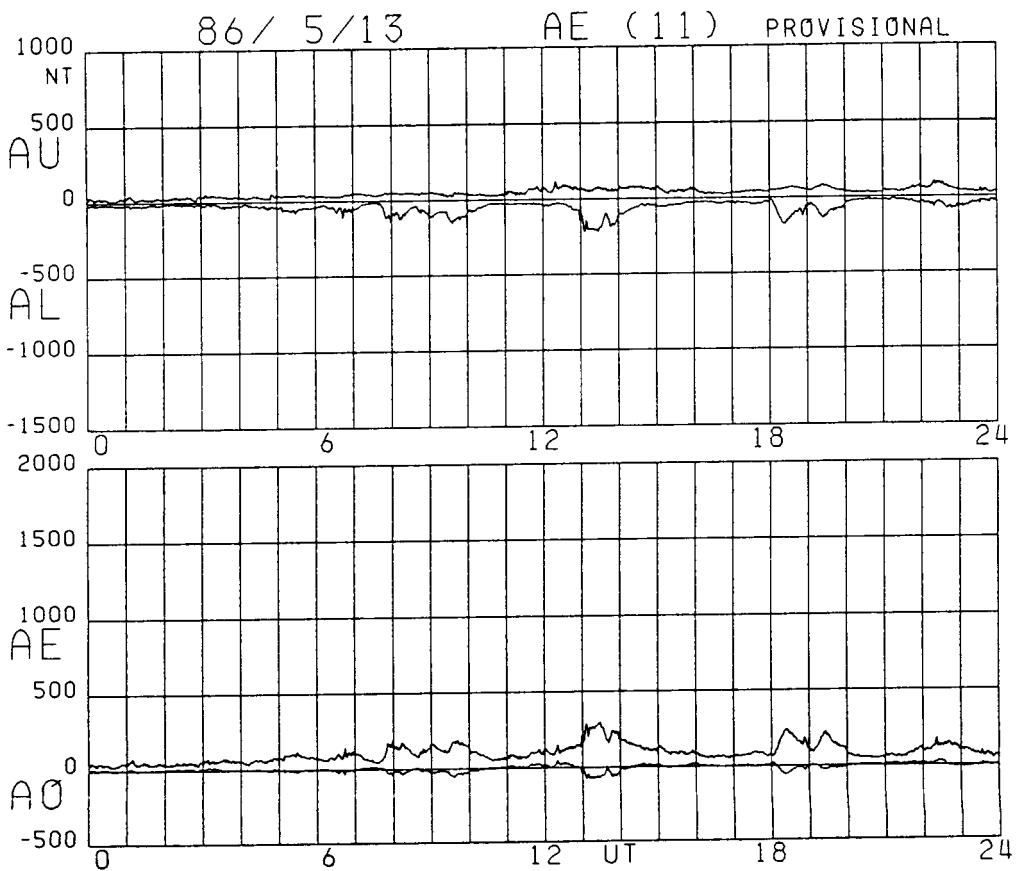
Prov.AE 8605 Fig.1- 4



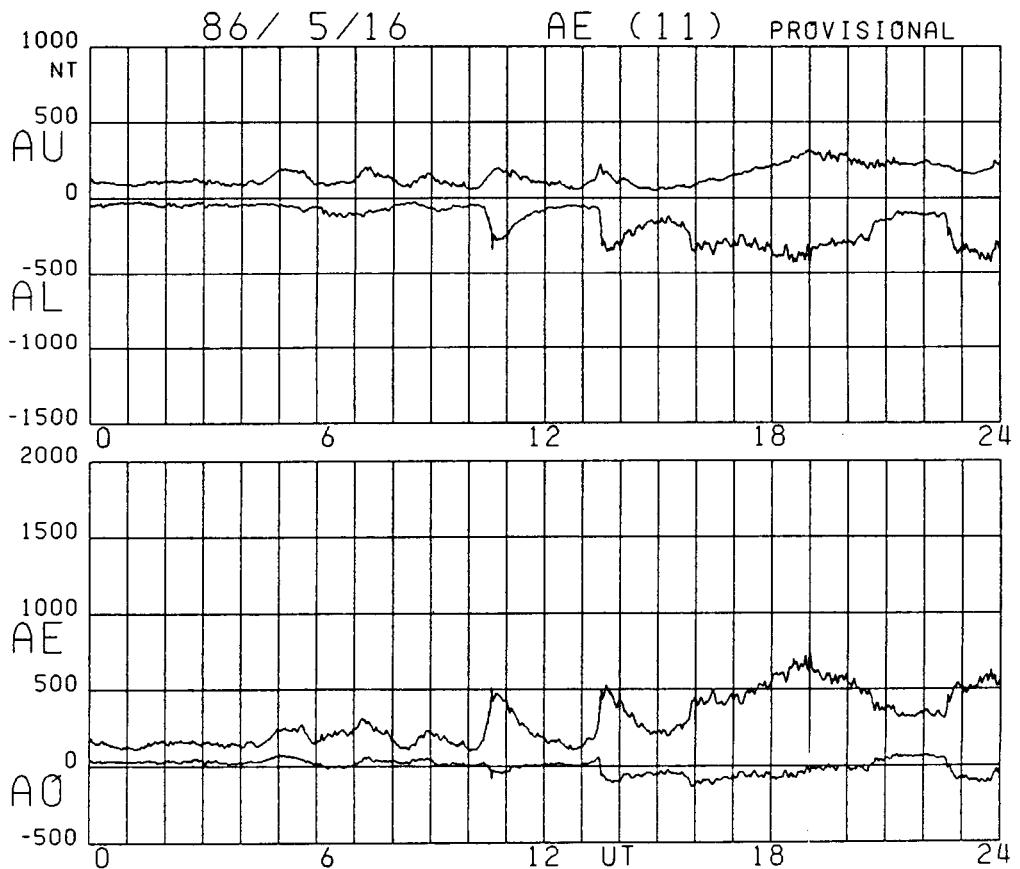
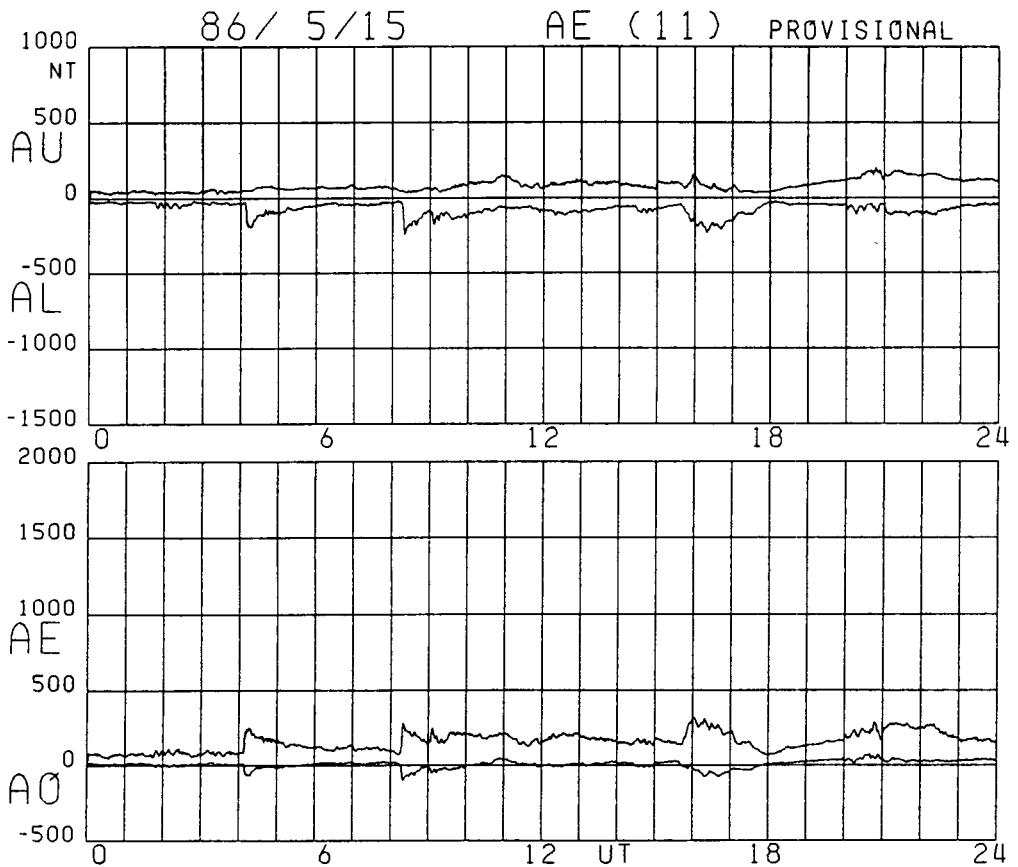
Prov.AE 8605 Fig.1- 5



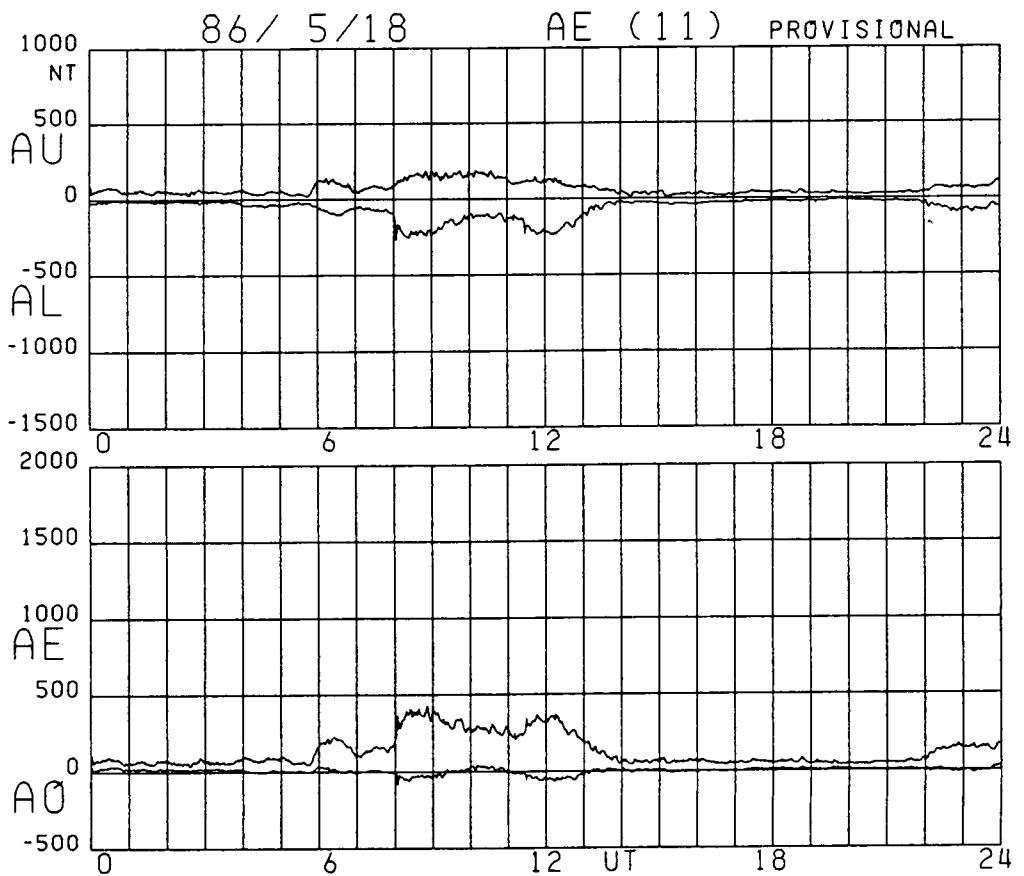
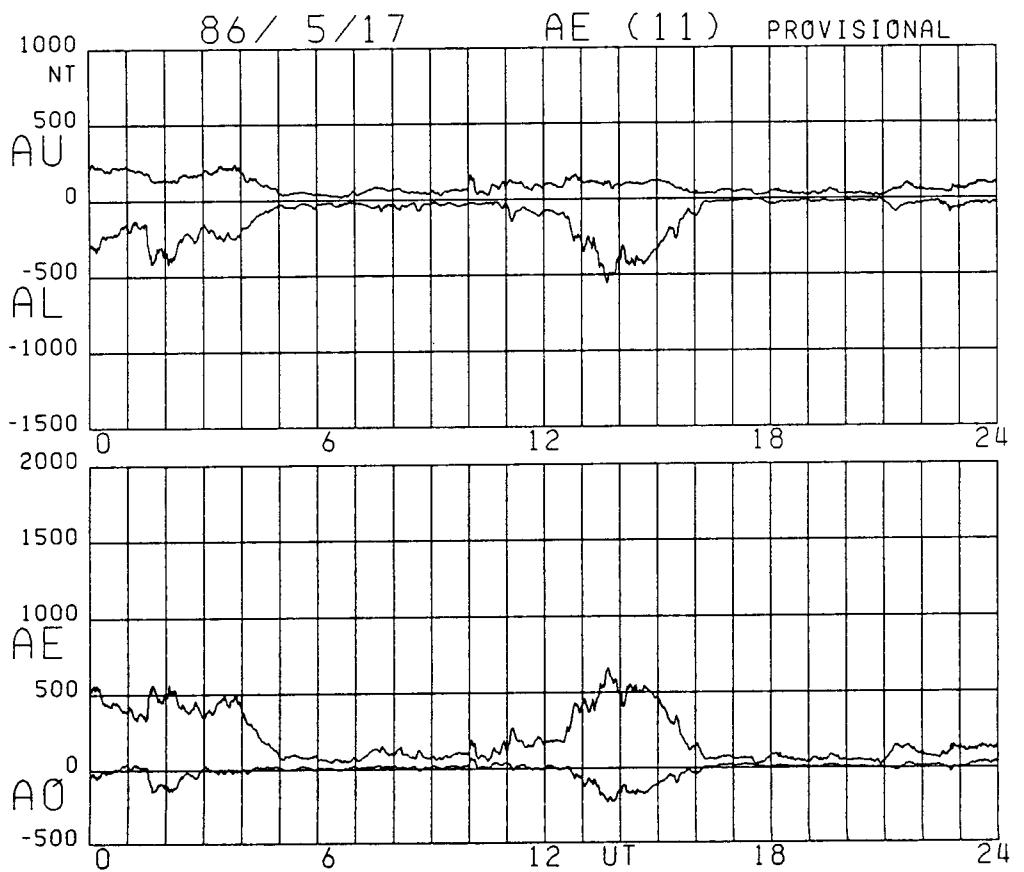
Prov.AE 8605 Fig.1- 6



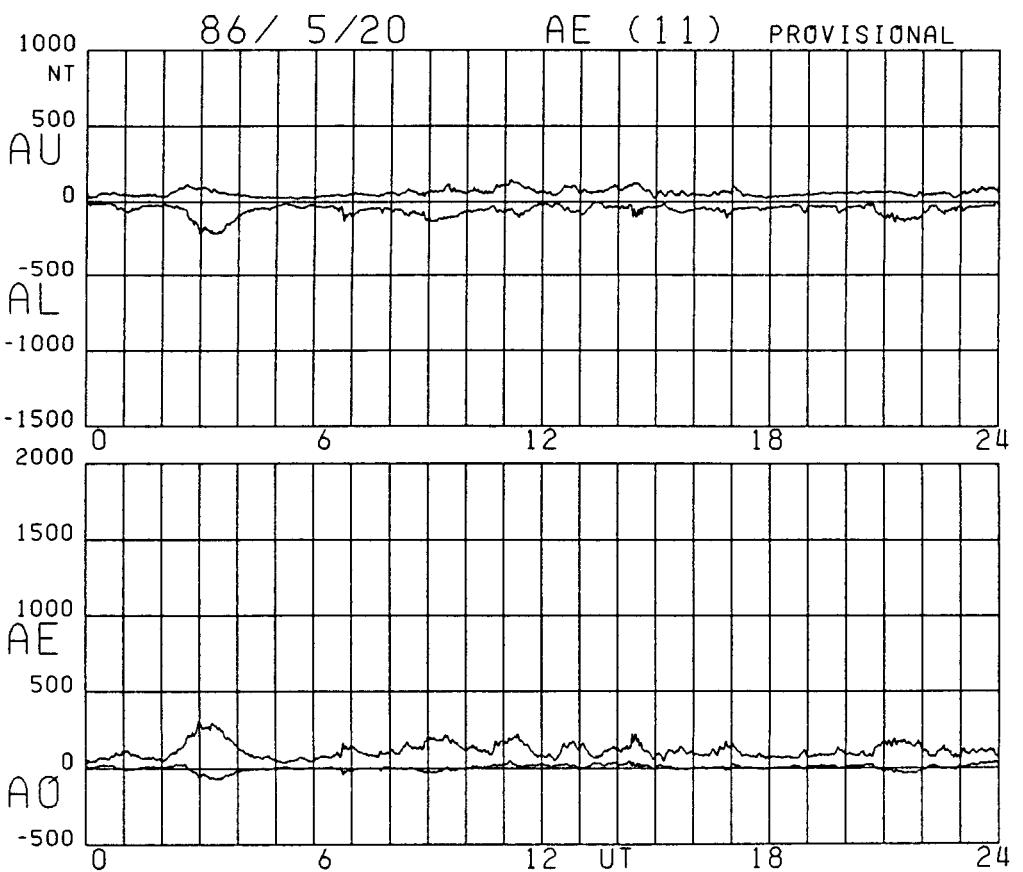
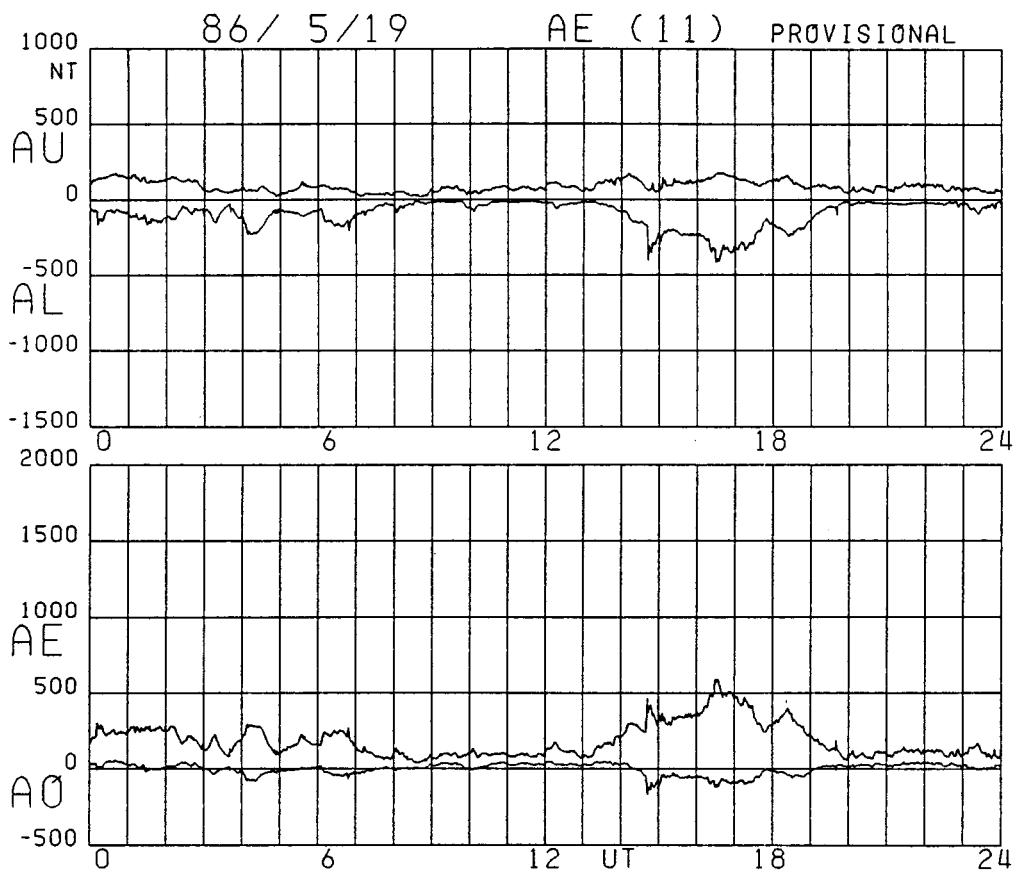
Prov.AE 8605 Fig.1- 7



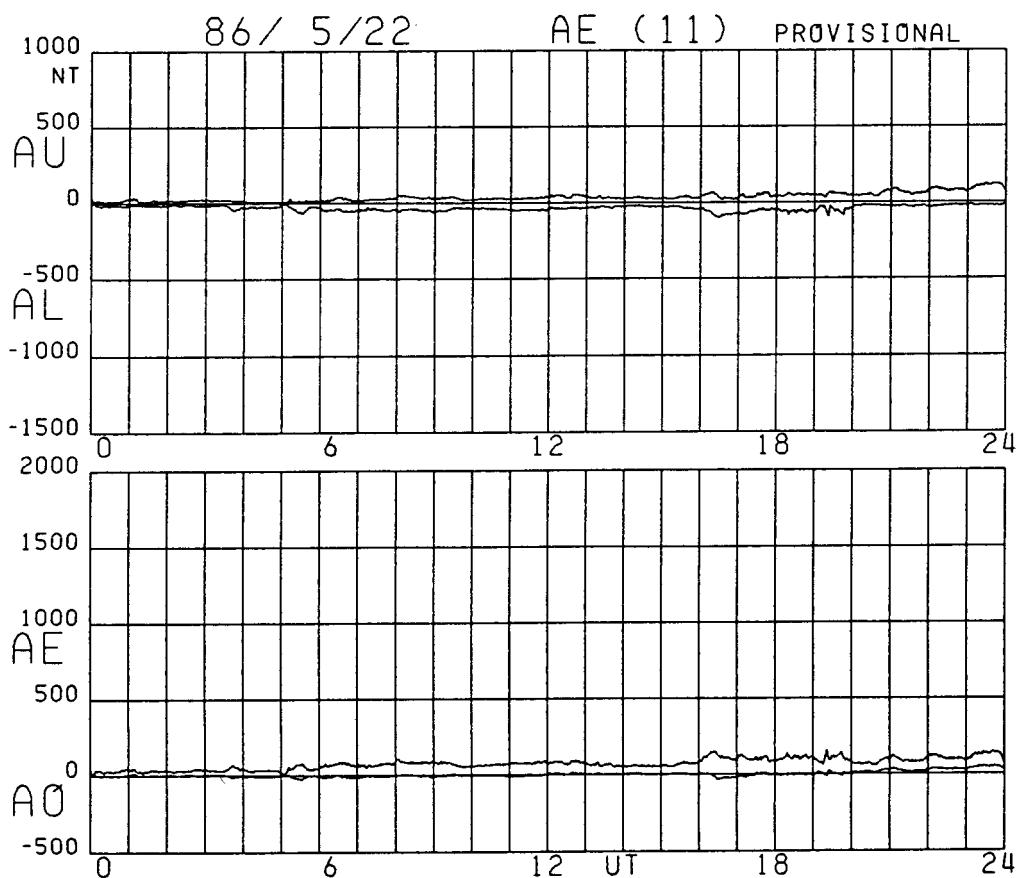
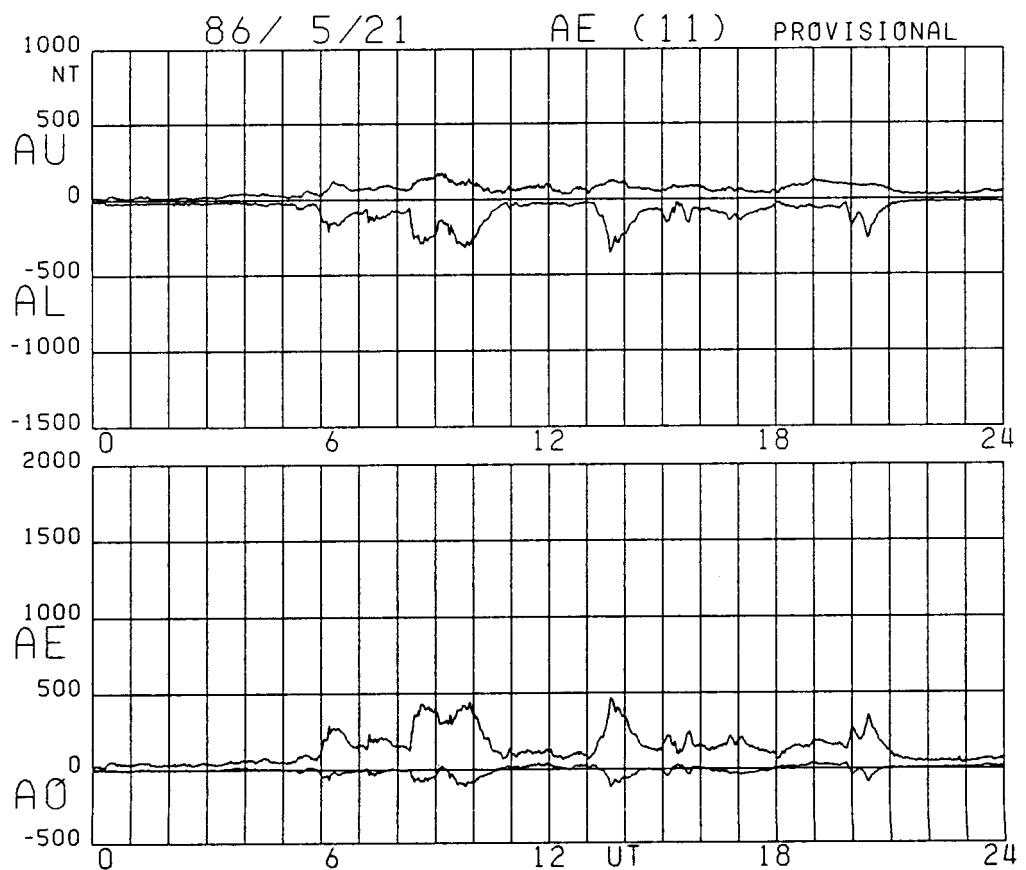
Prov.AE 8605 Fig.1- 8



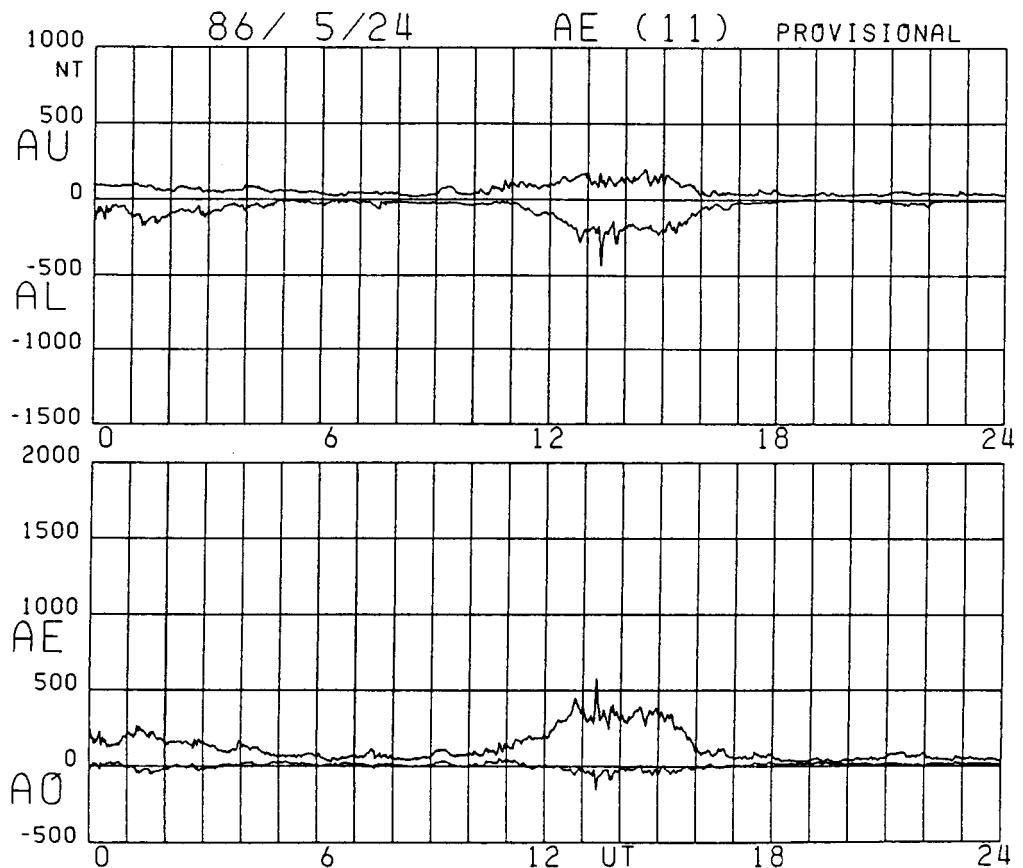
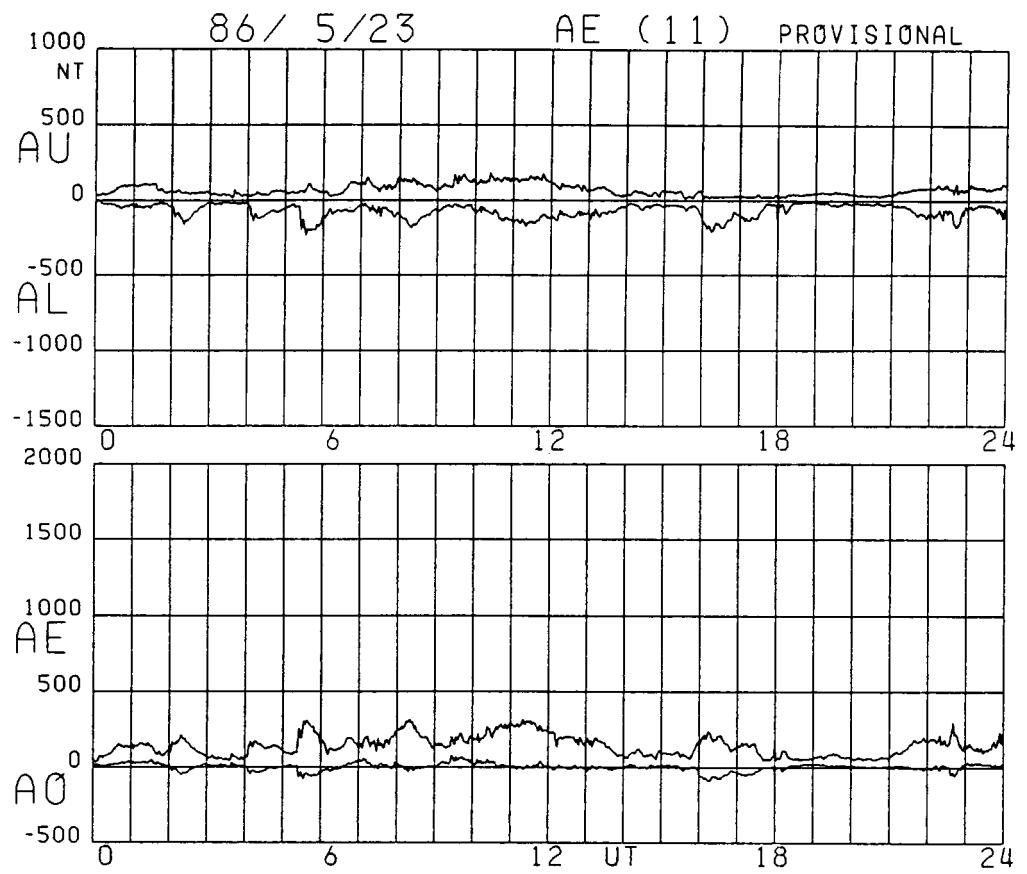
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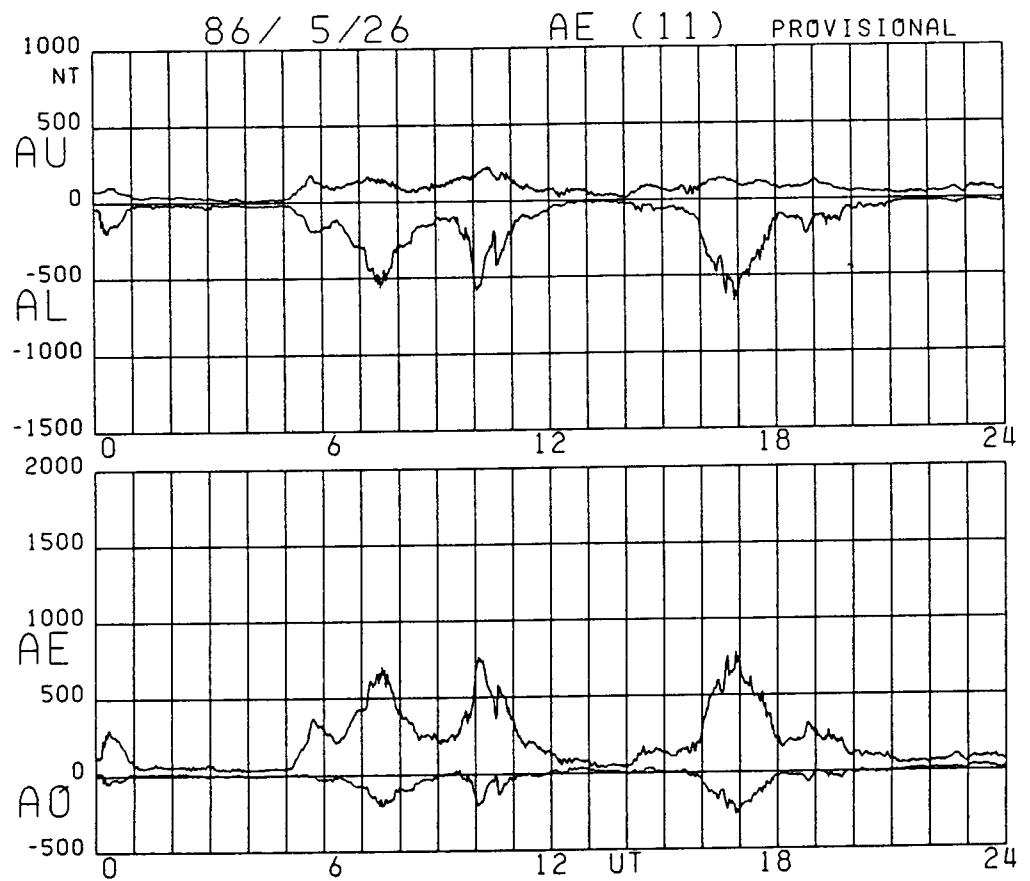
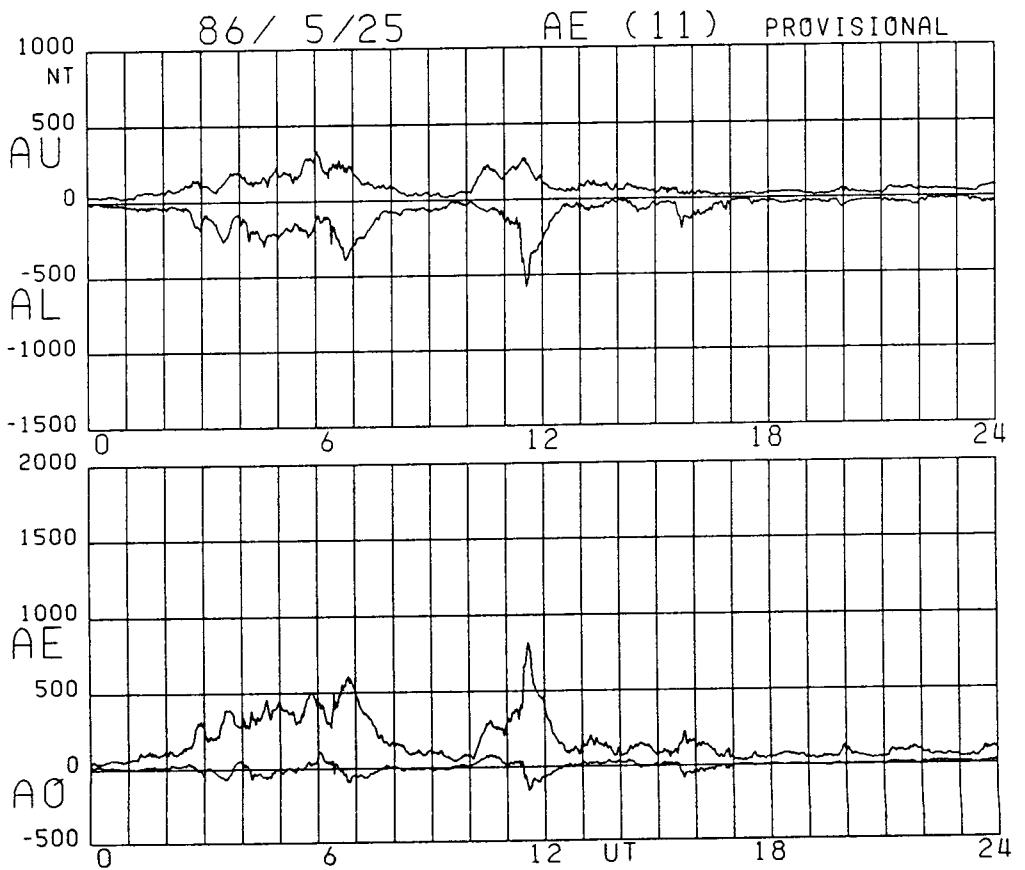
Prov.AE 8605 Fig.1-10



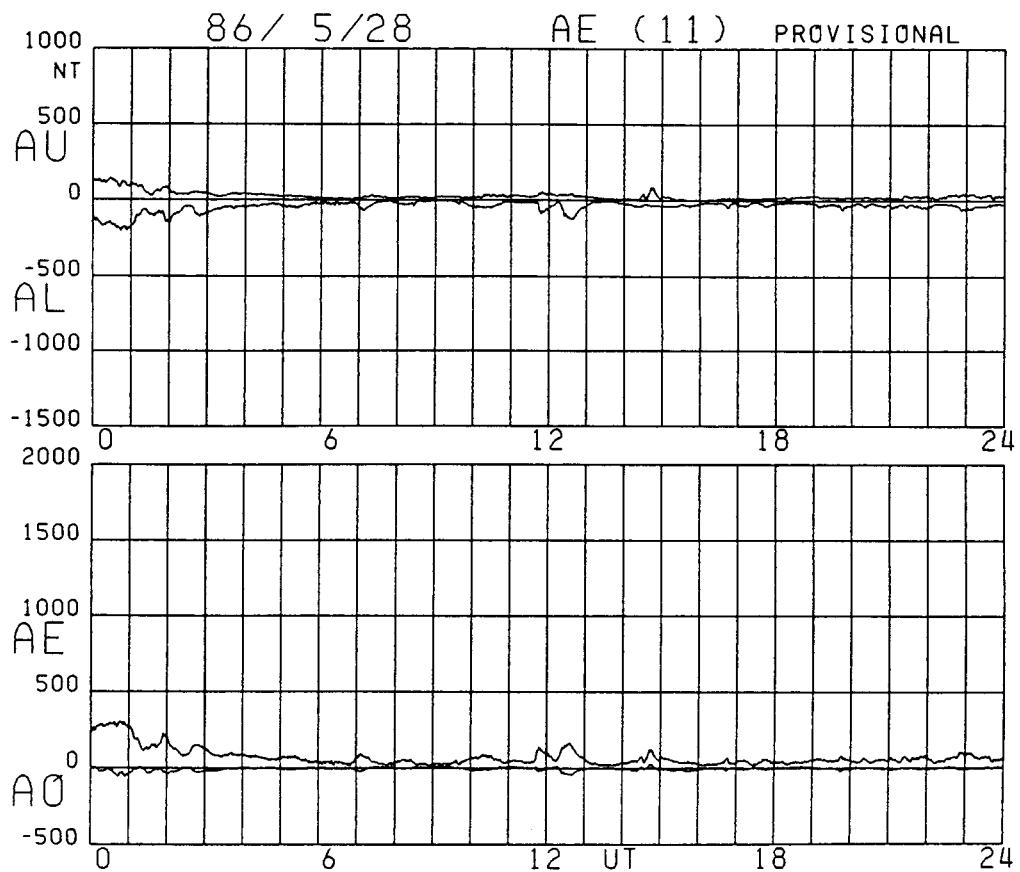
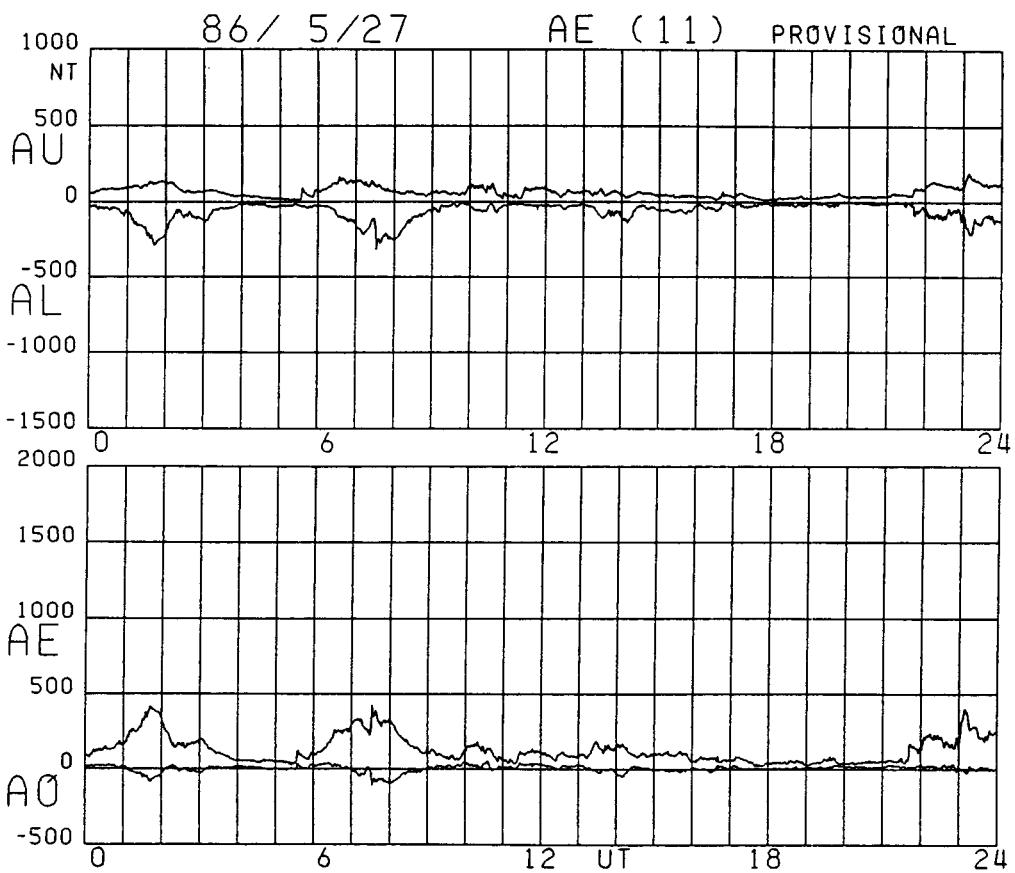
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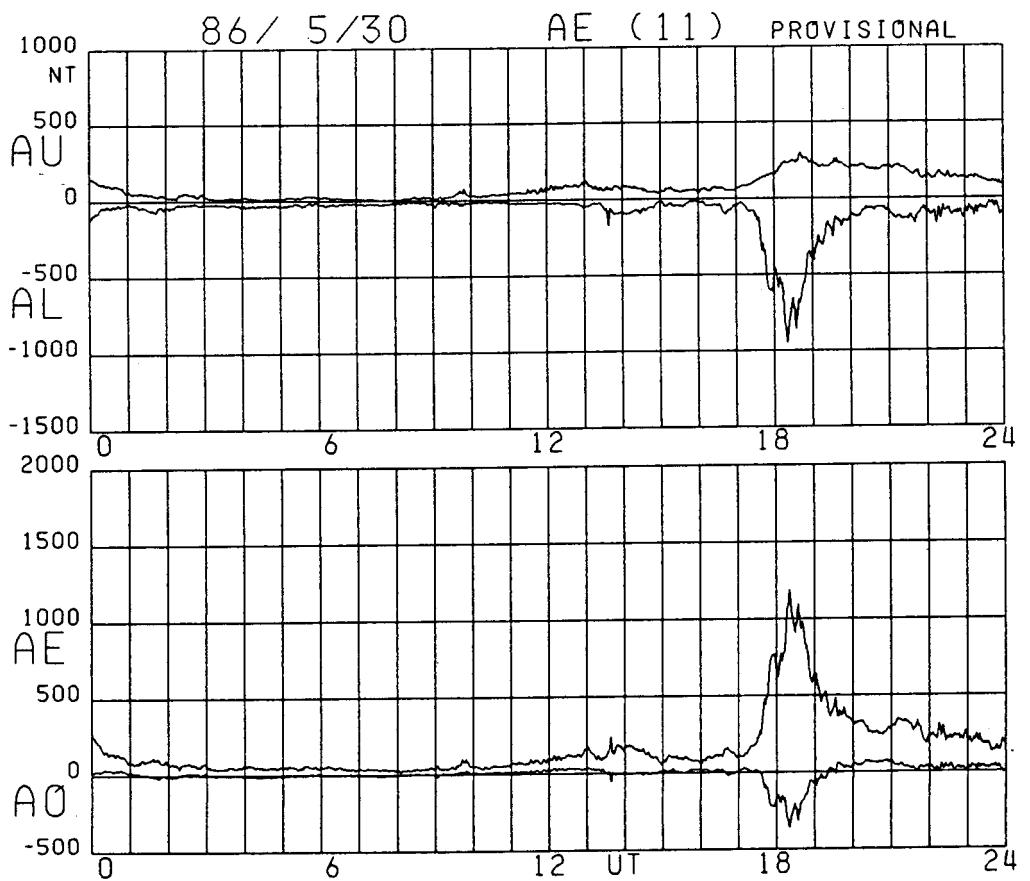
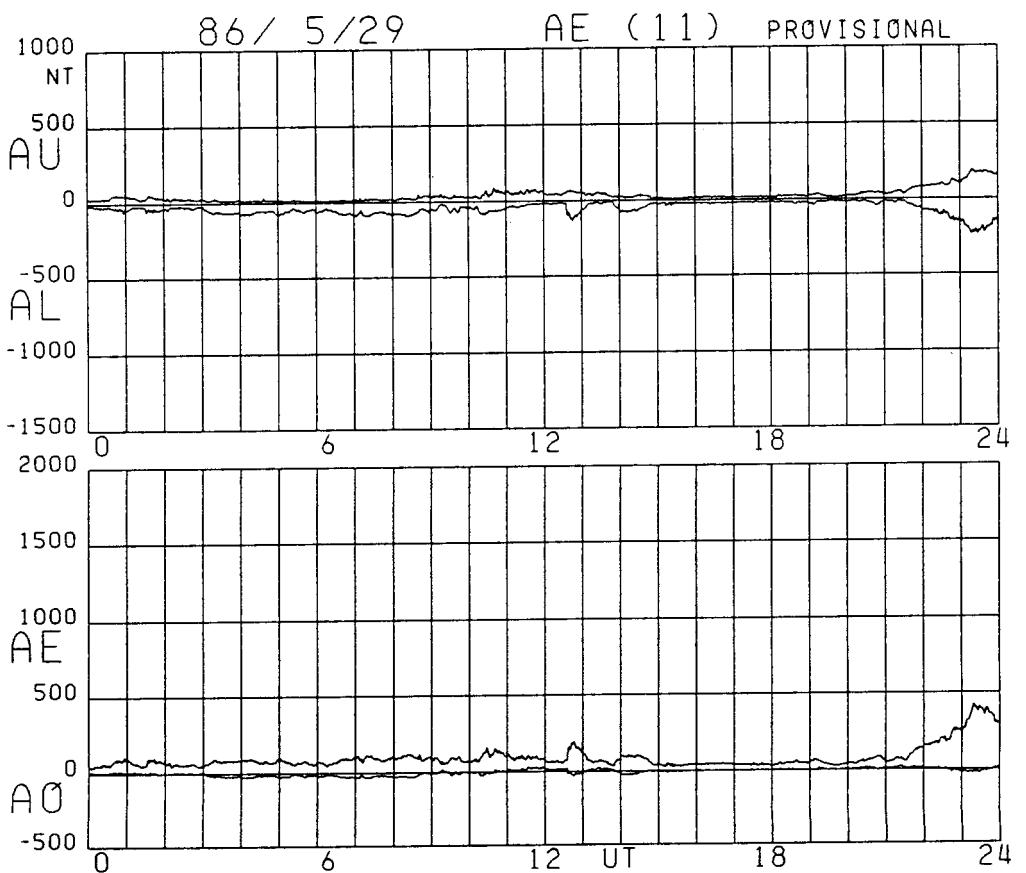
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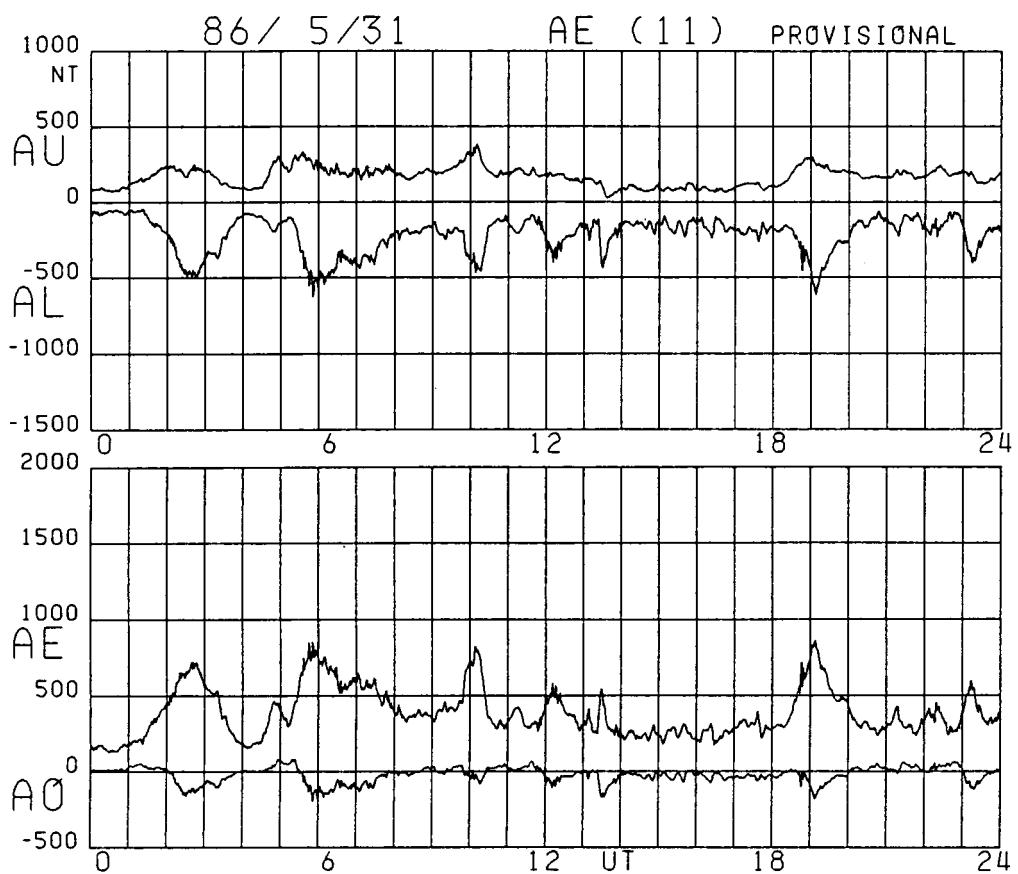
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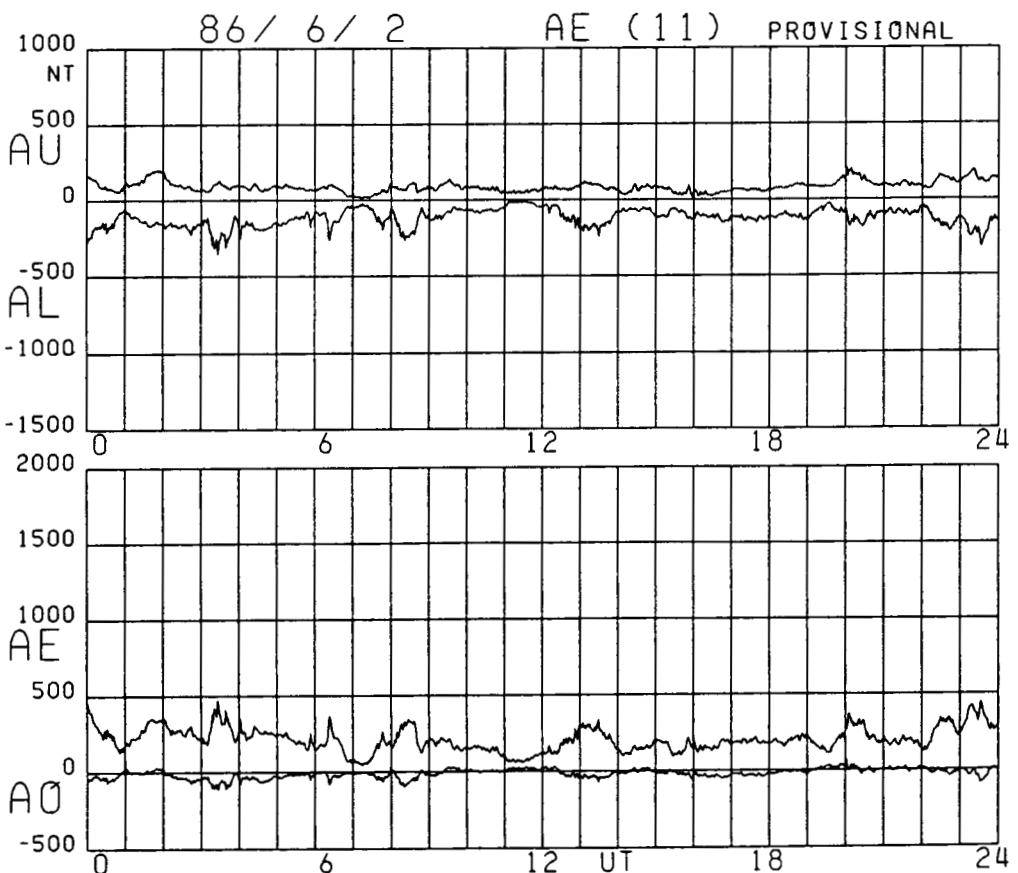
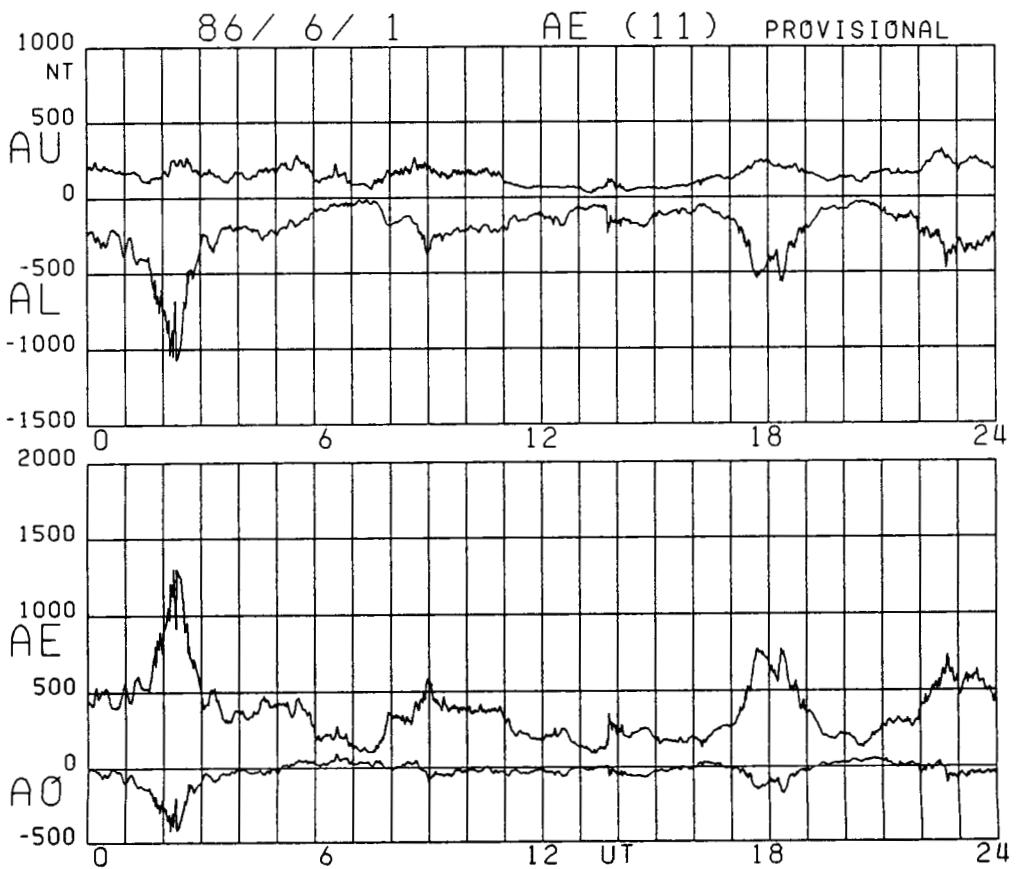
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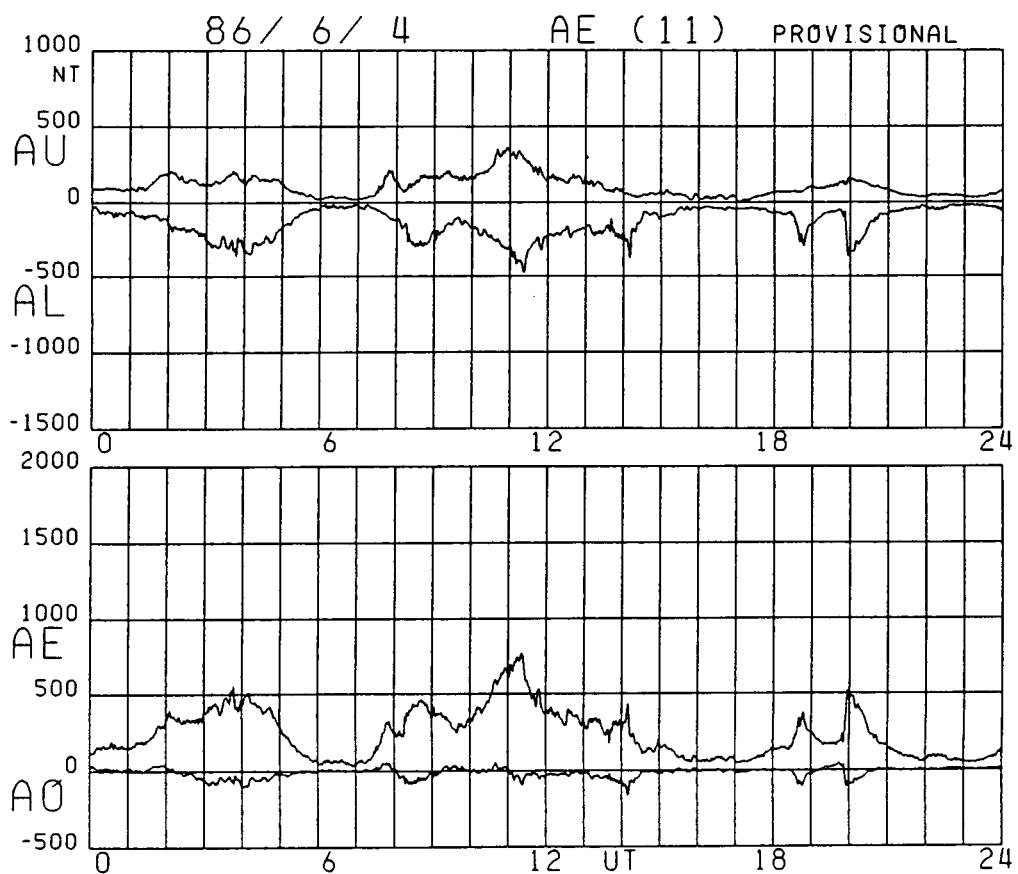
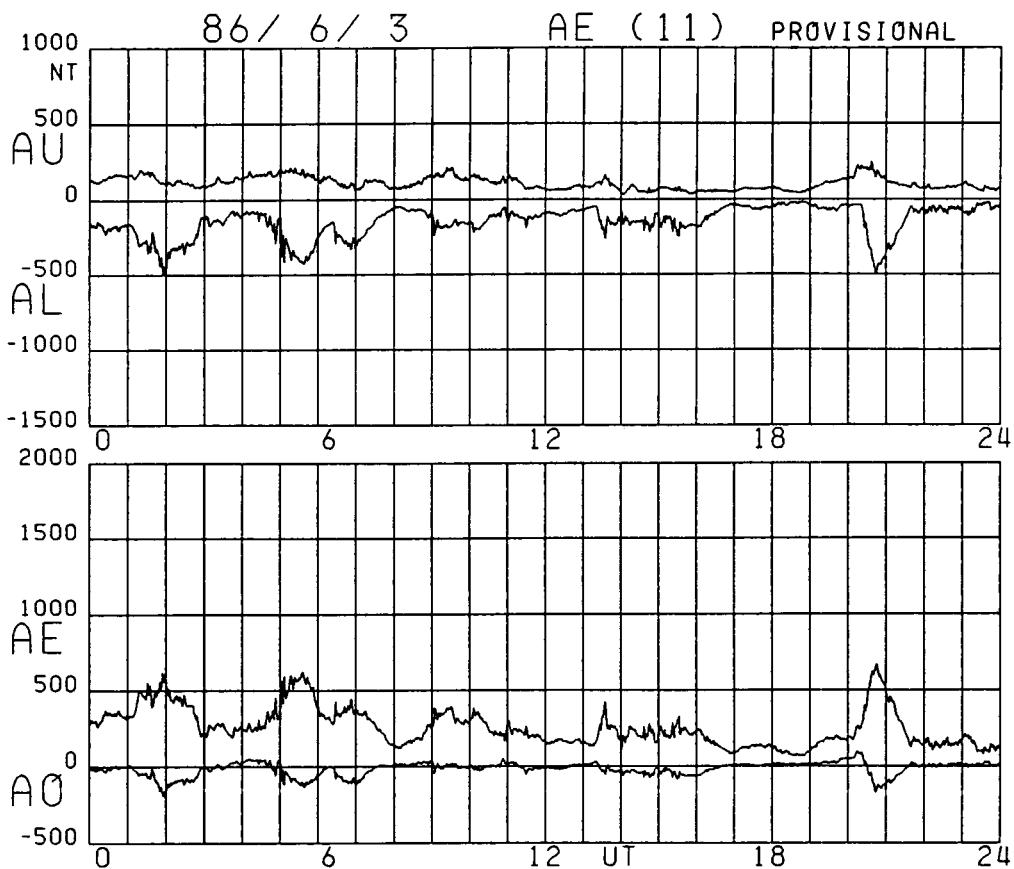
Prov.AE 8605 Fig.1-15



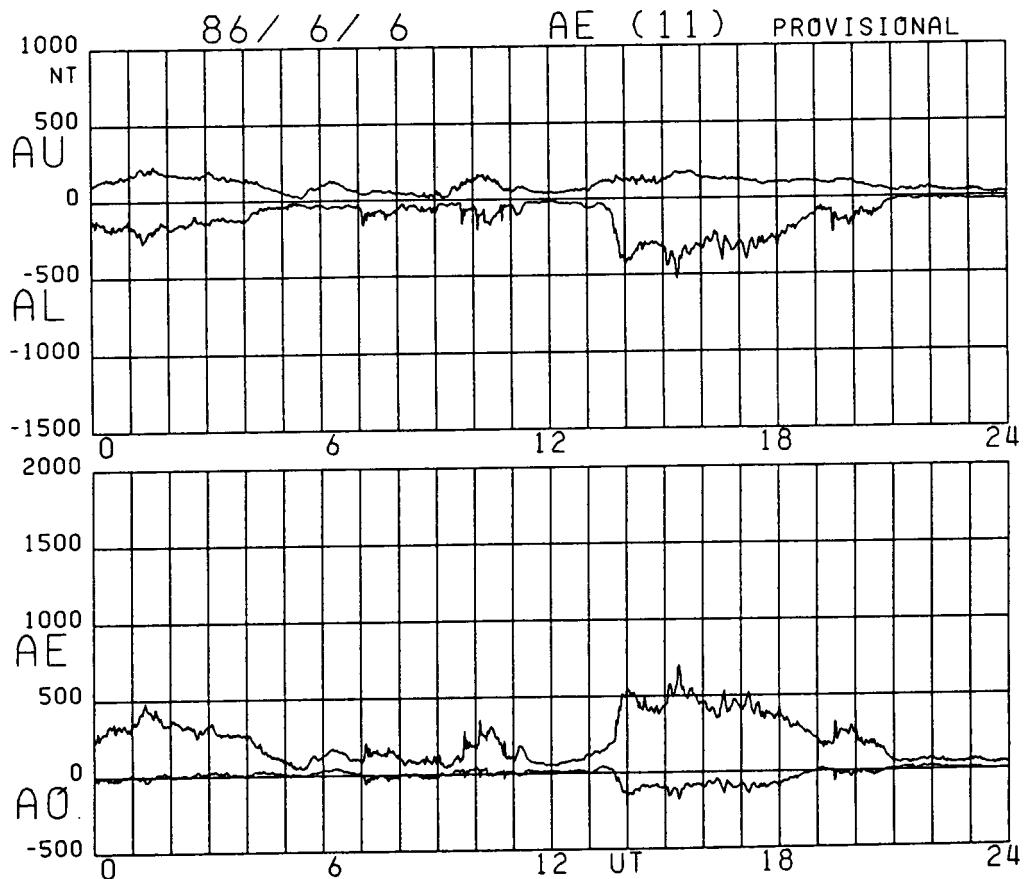
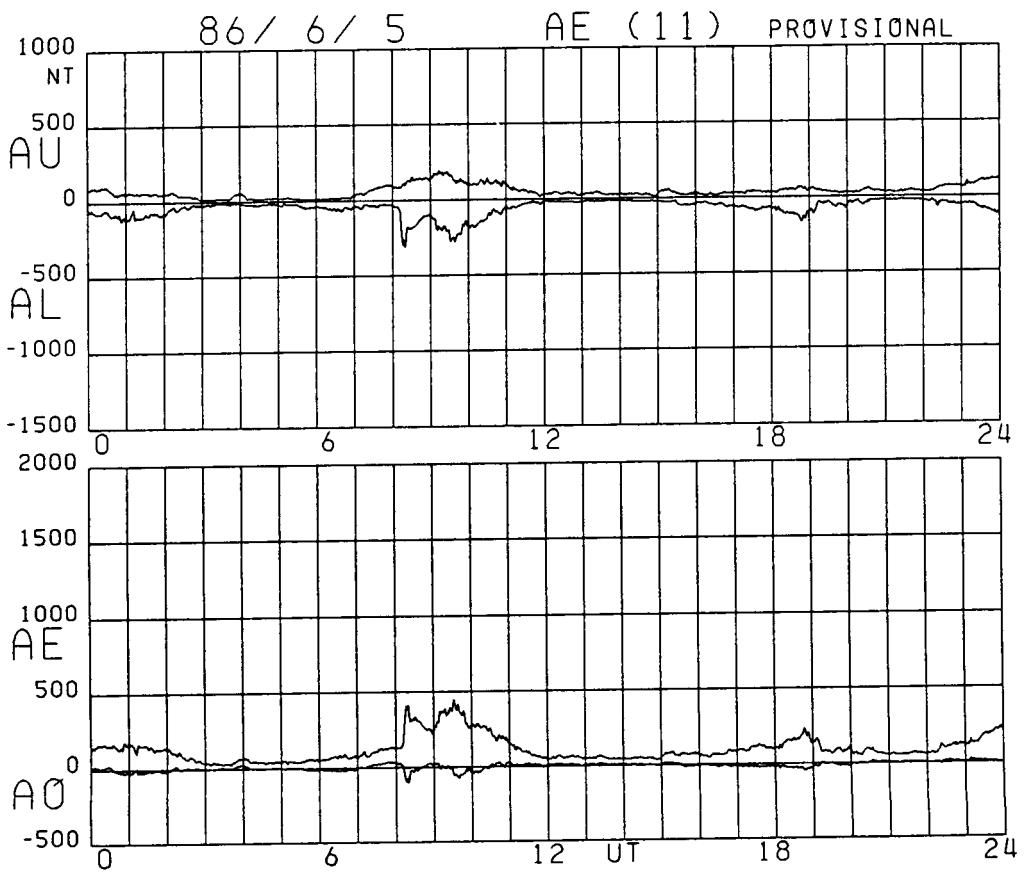
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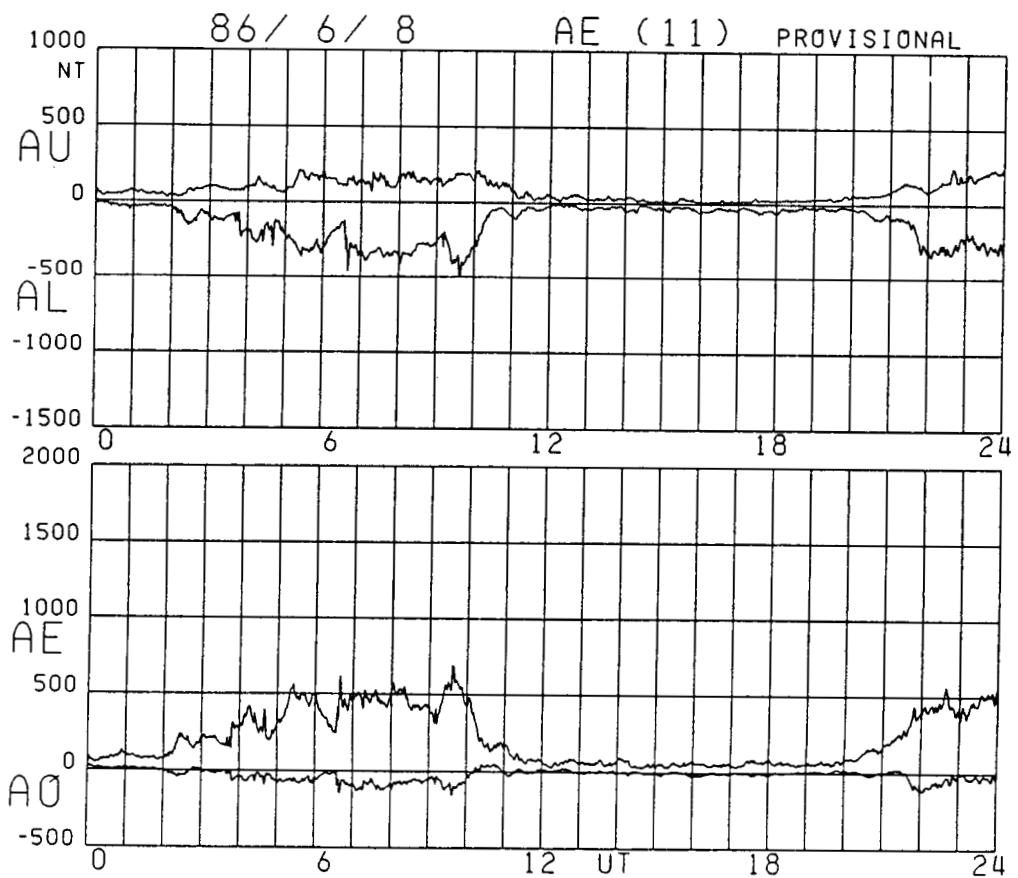
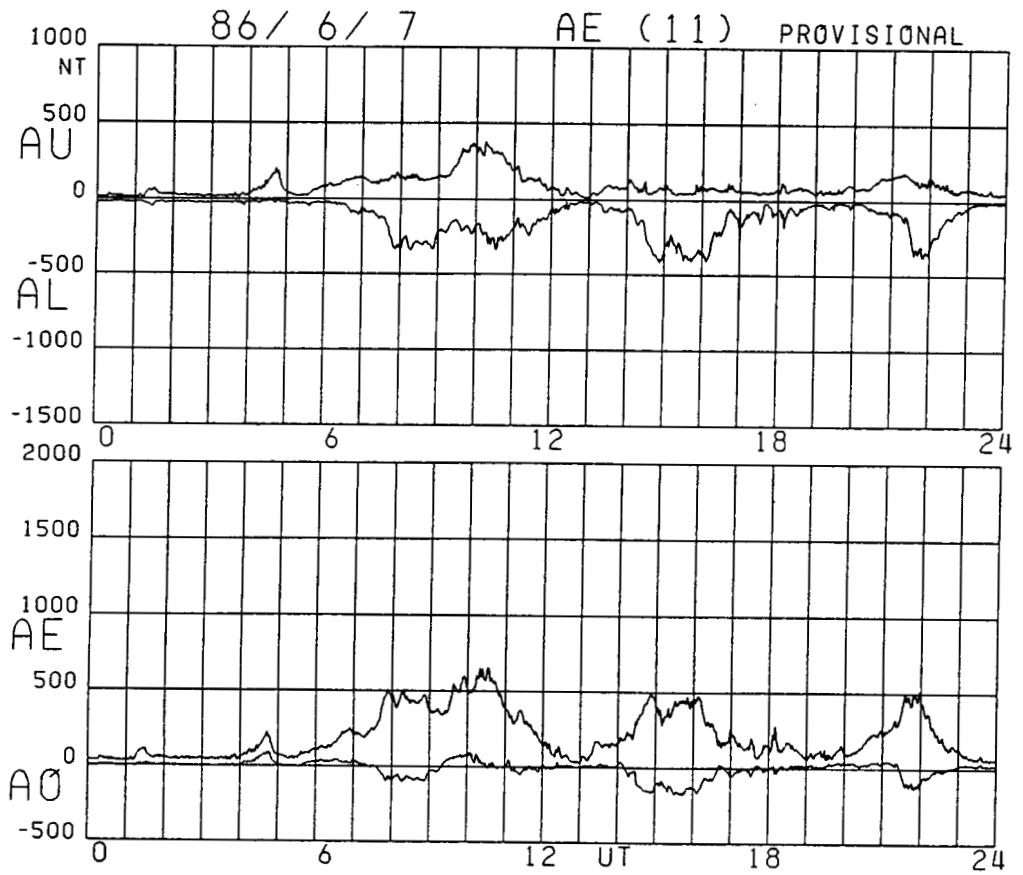
Prov.AE 8606 Fig.1- 1



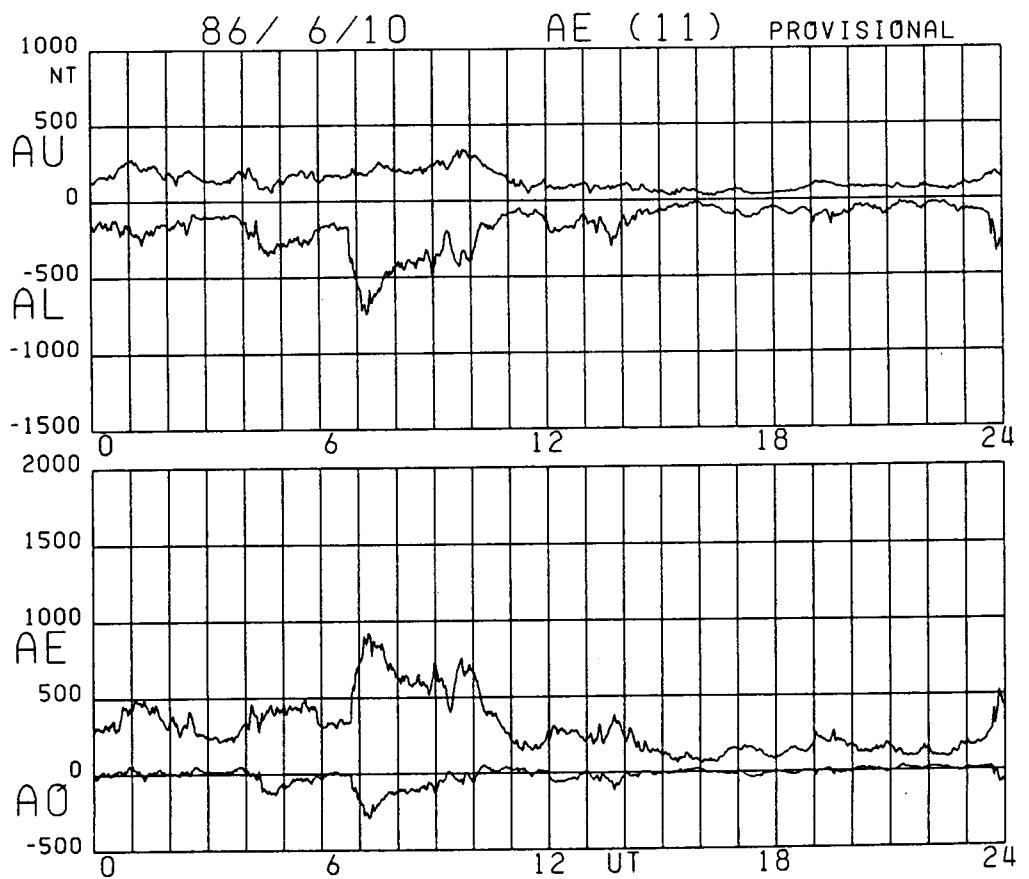
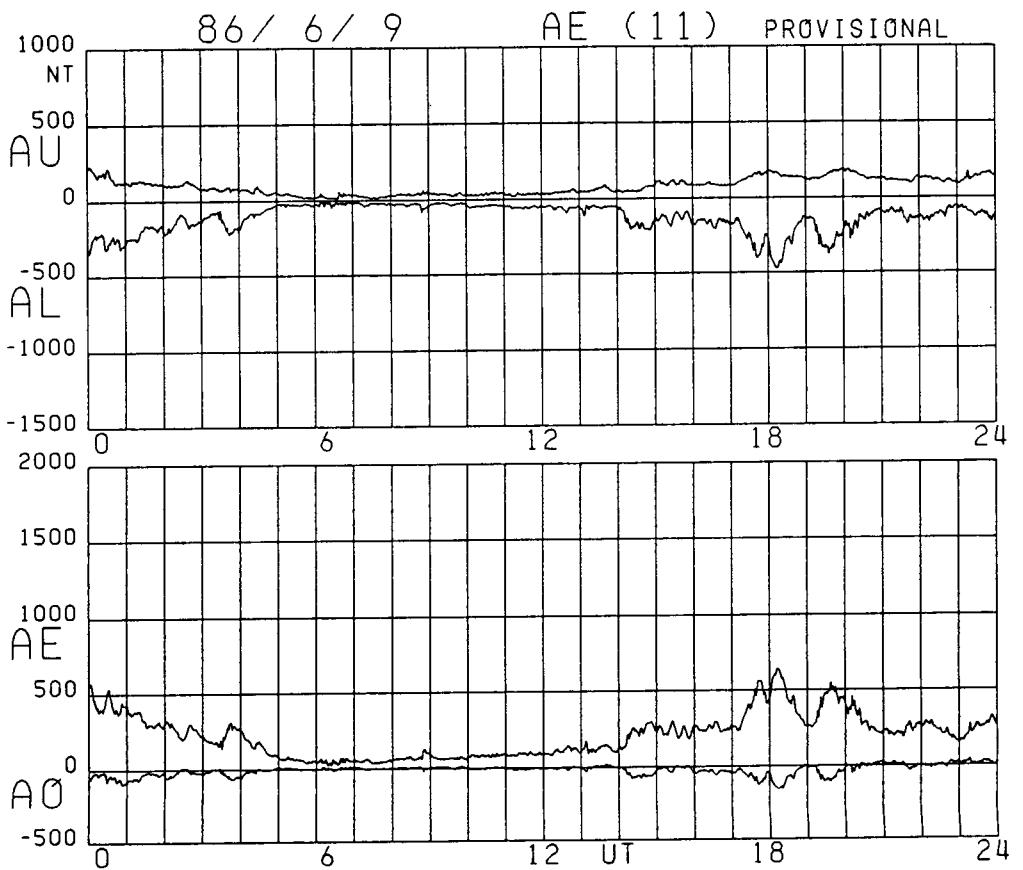
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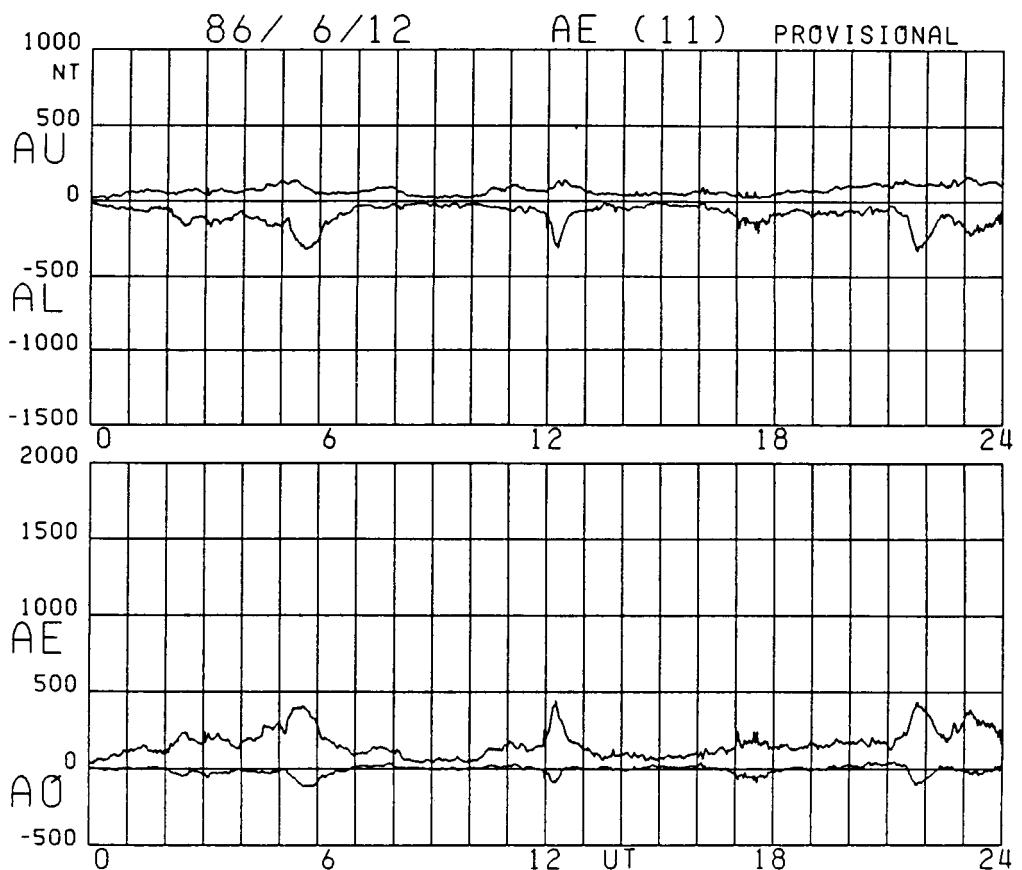
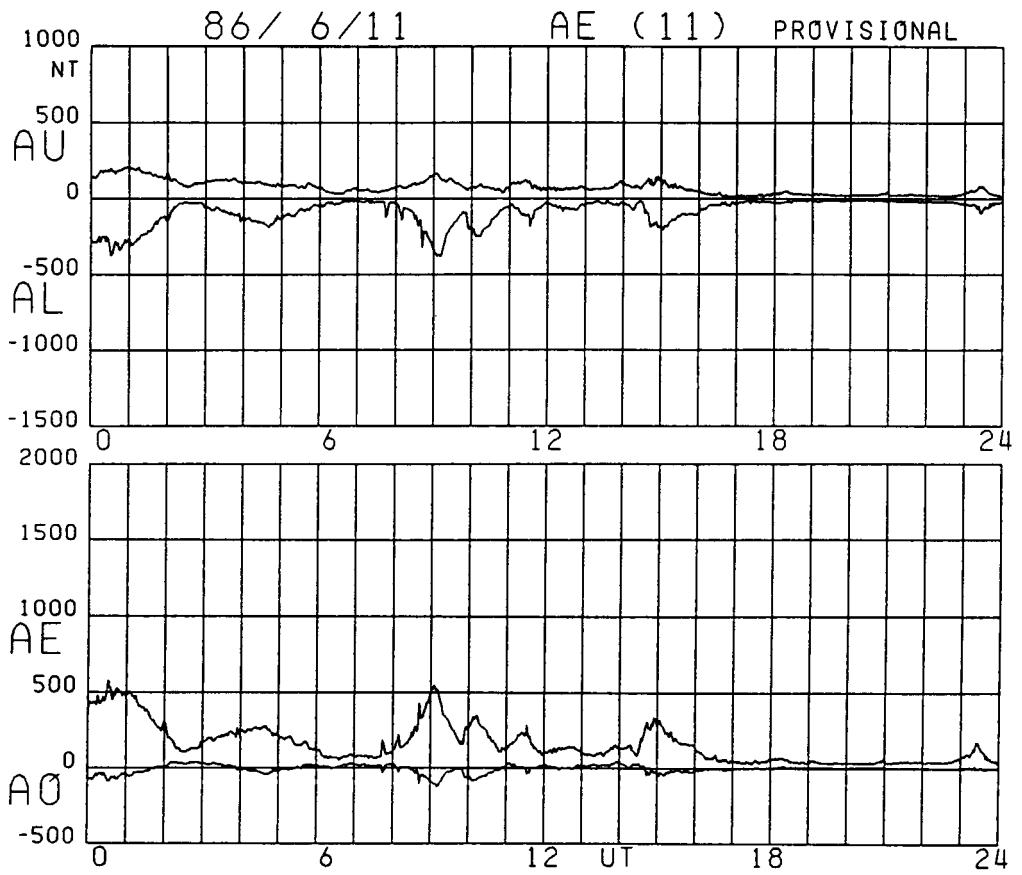
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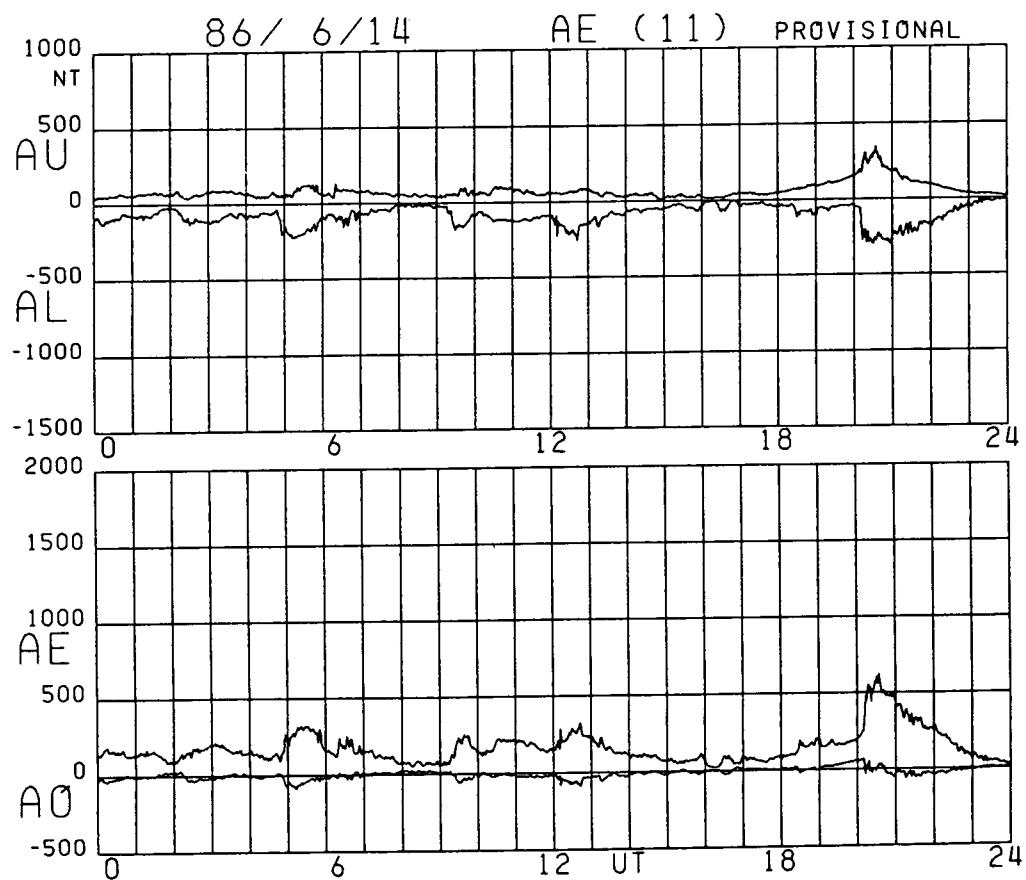
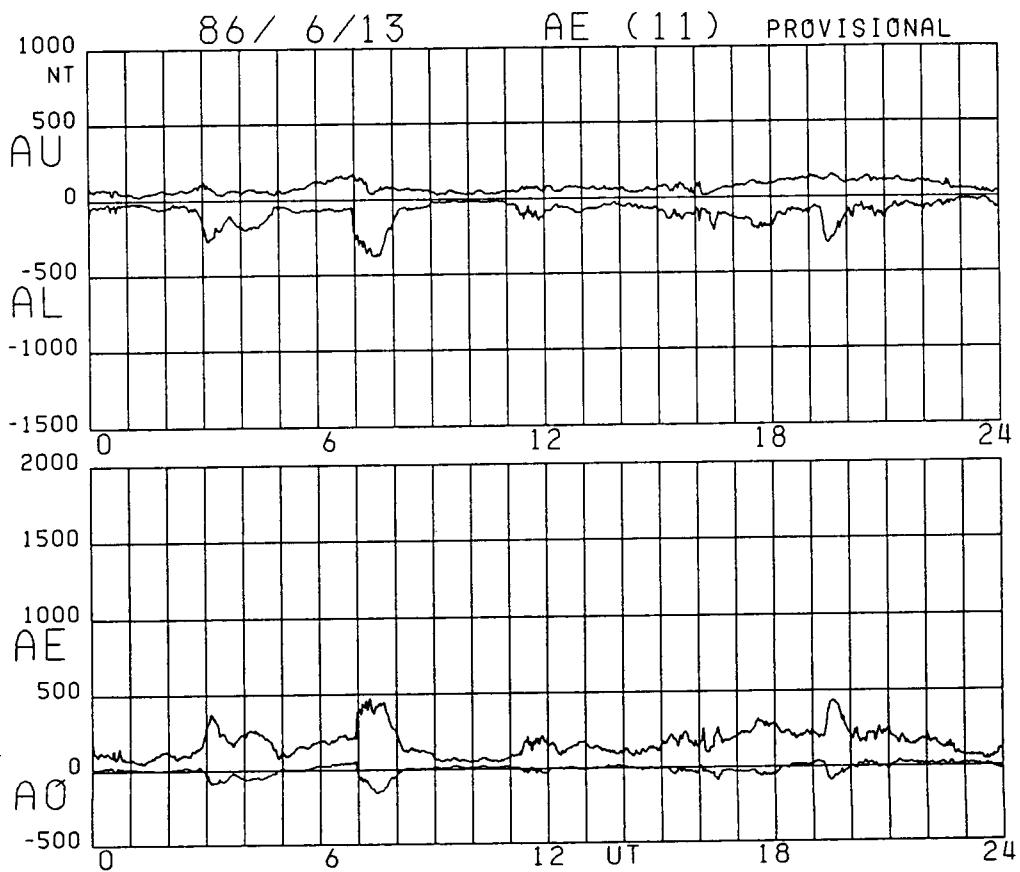
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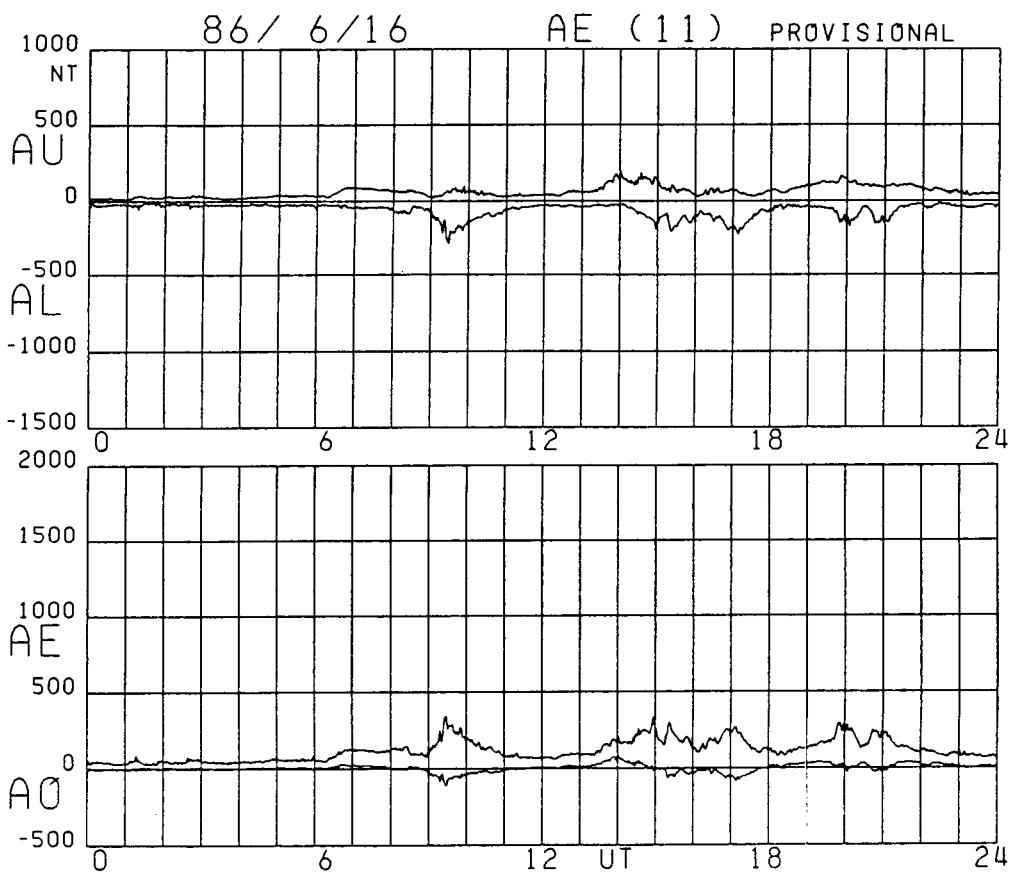
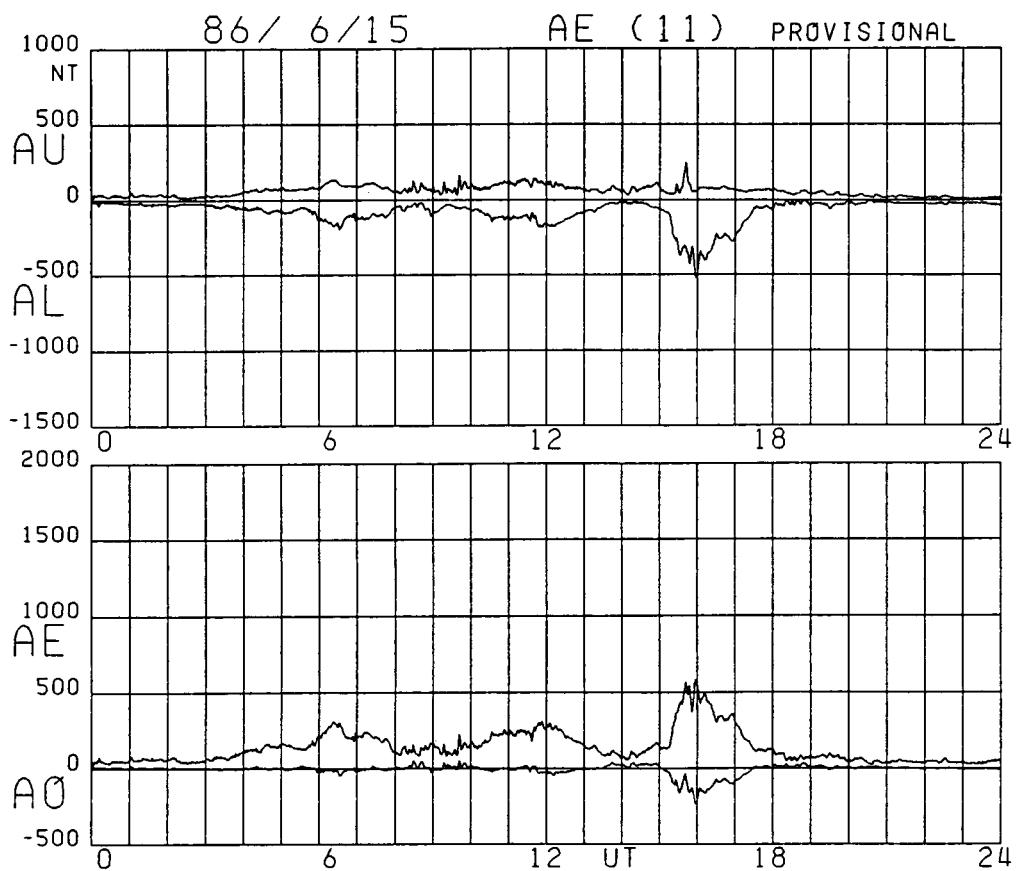
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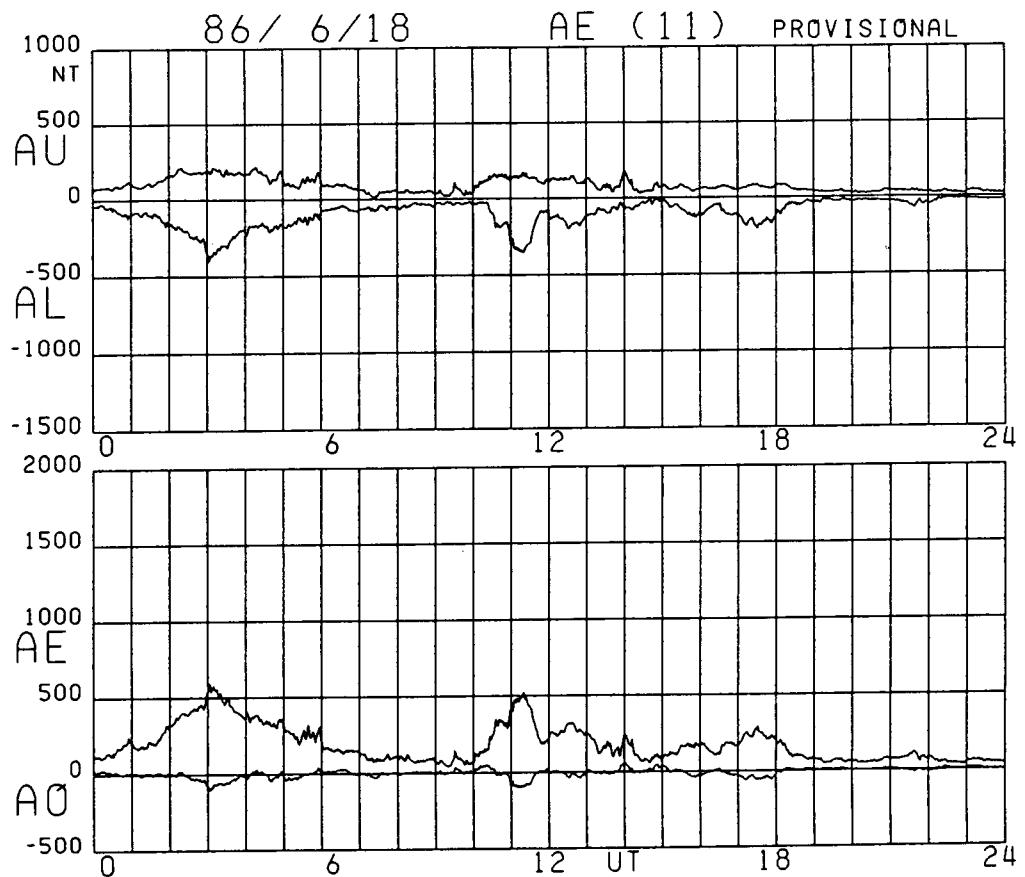
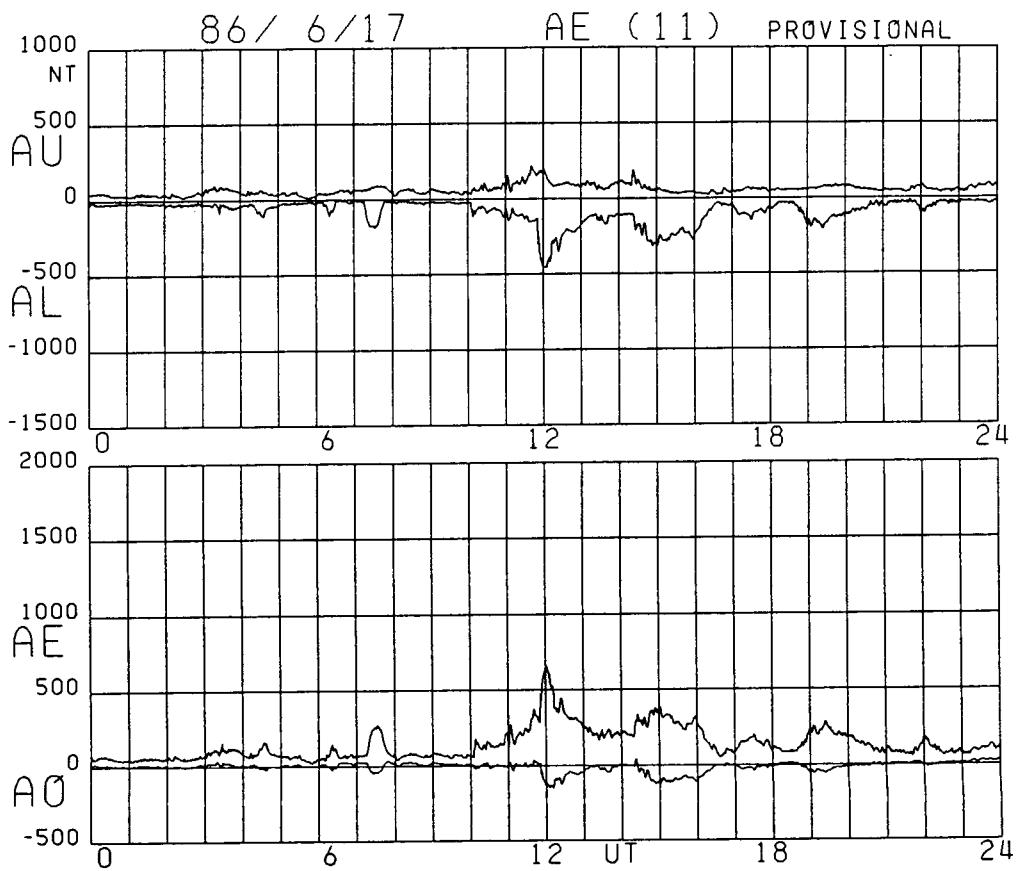
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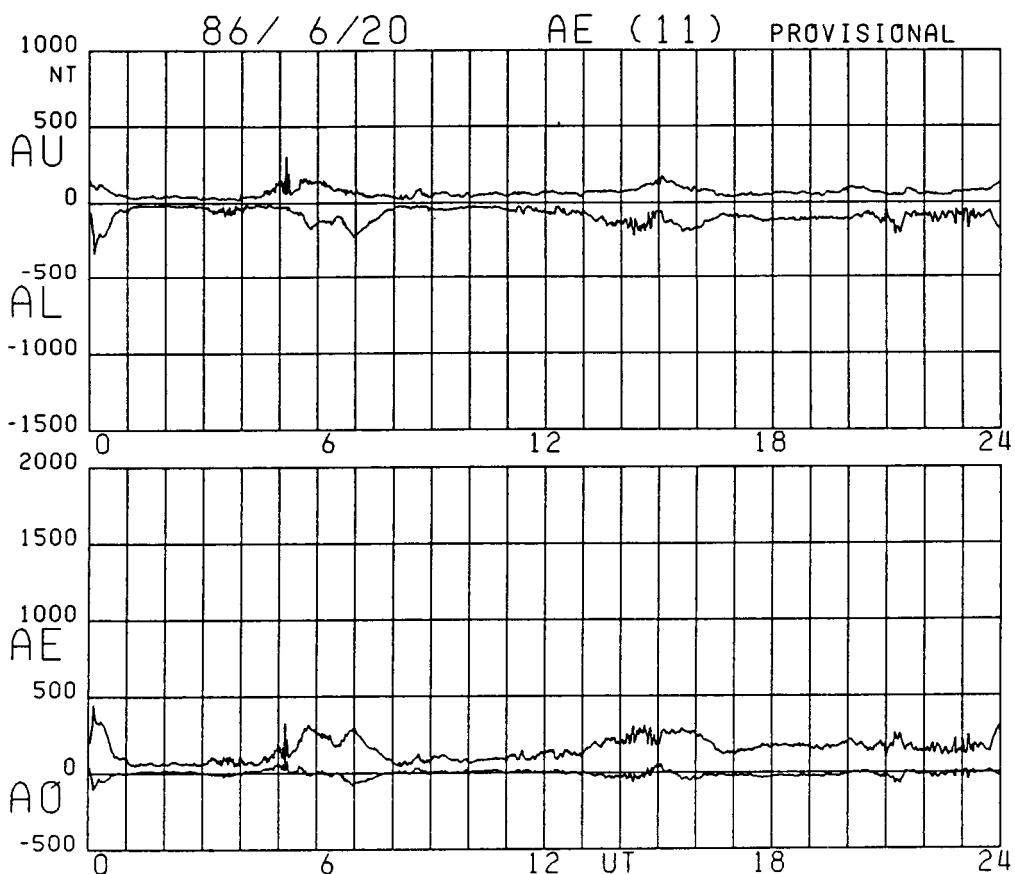
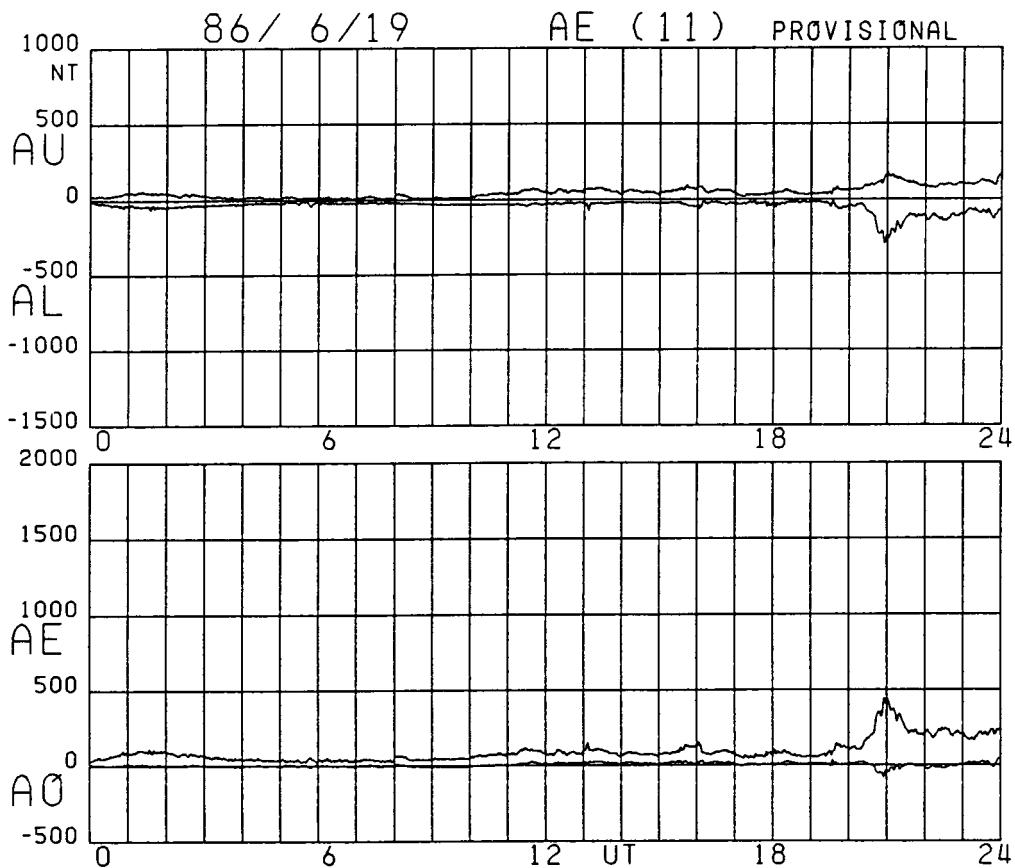
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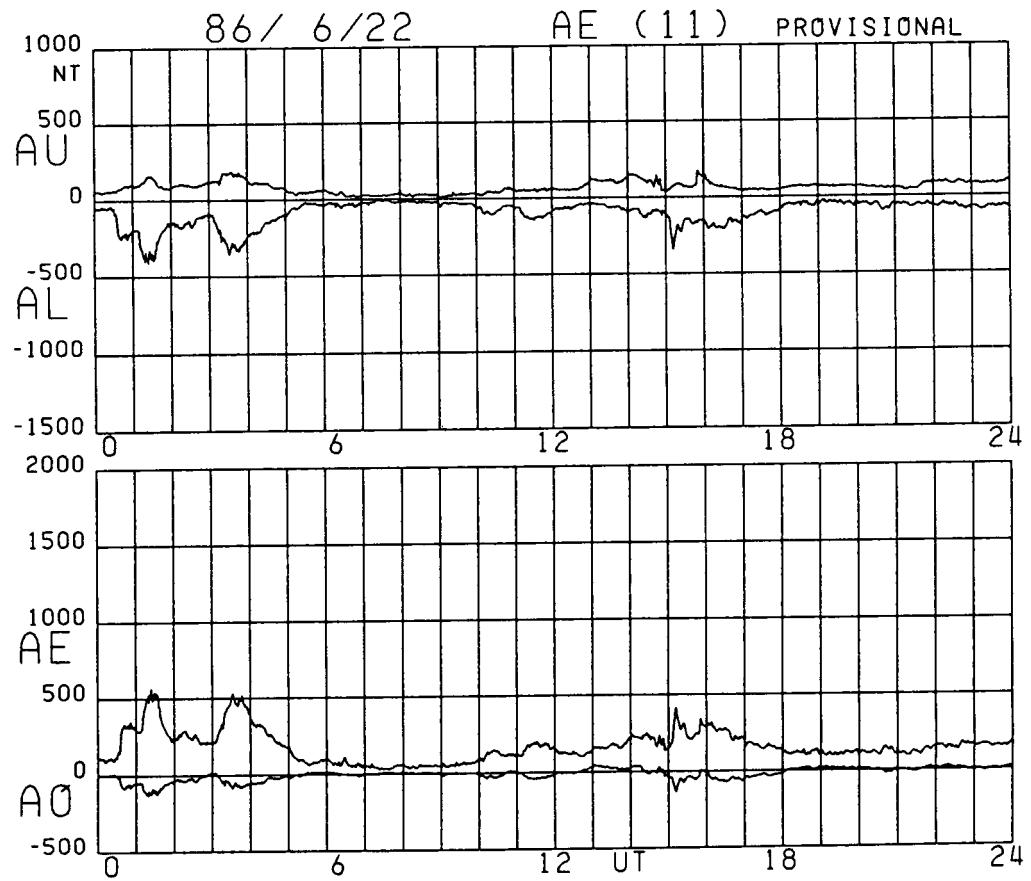
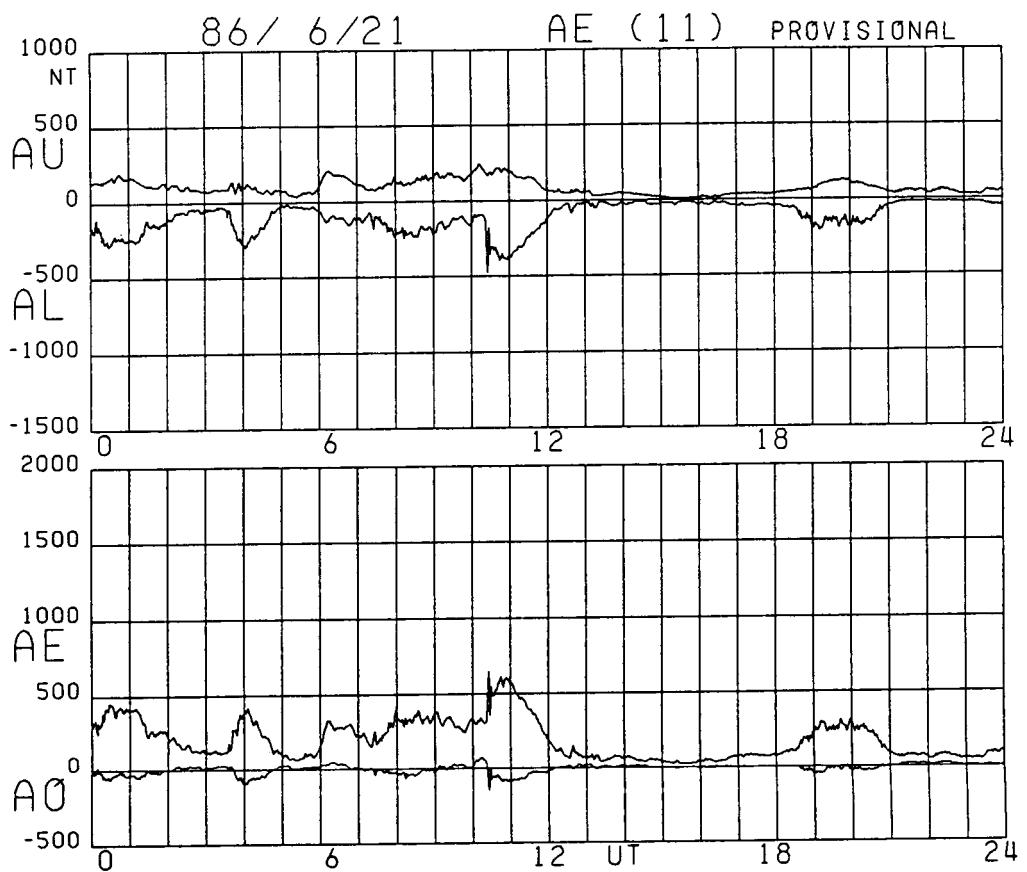
Prov.AE 8606 Fig.1- 8



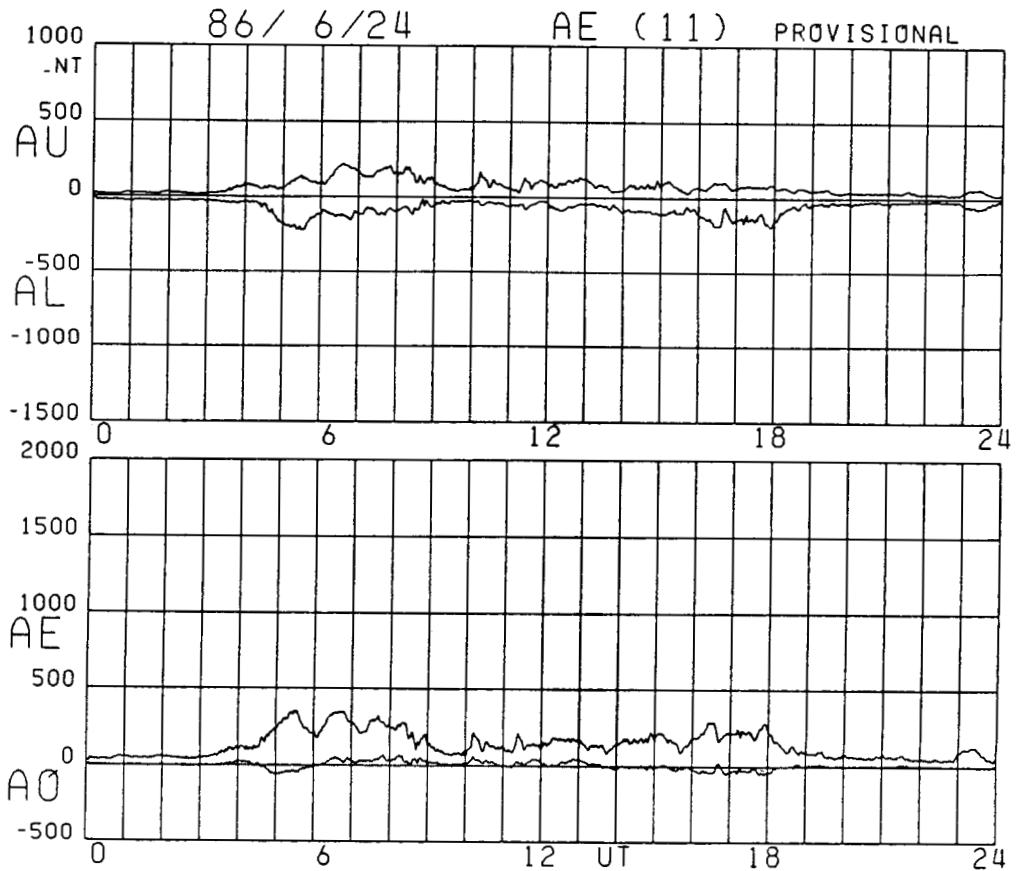
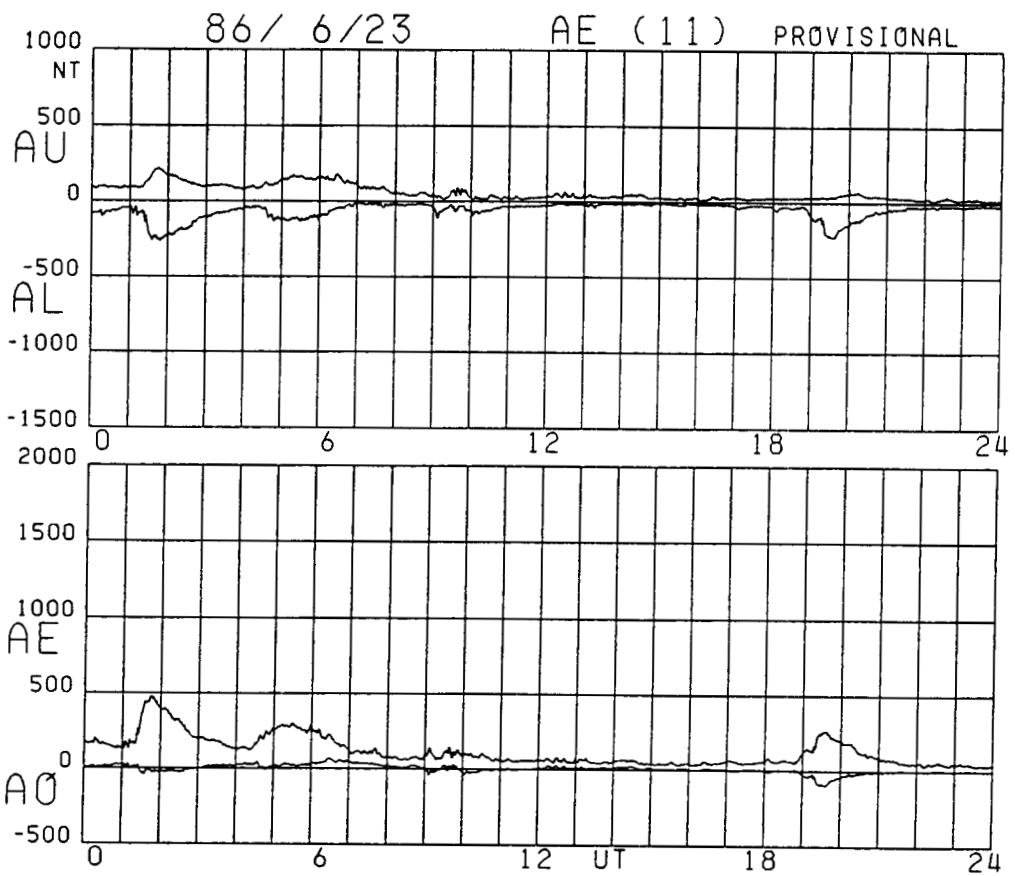
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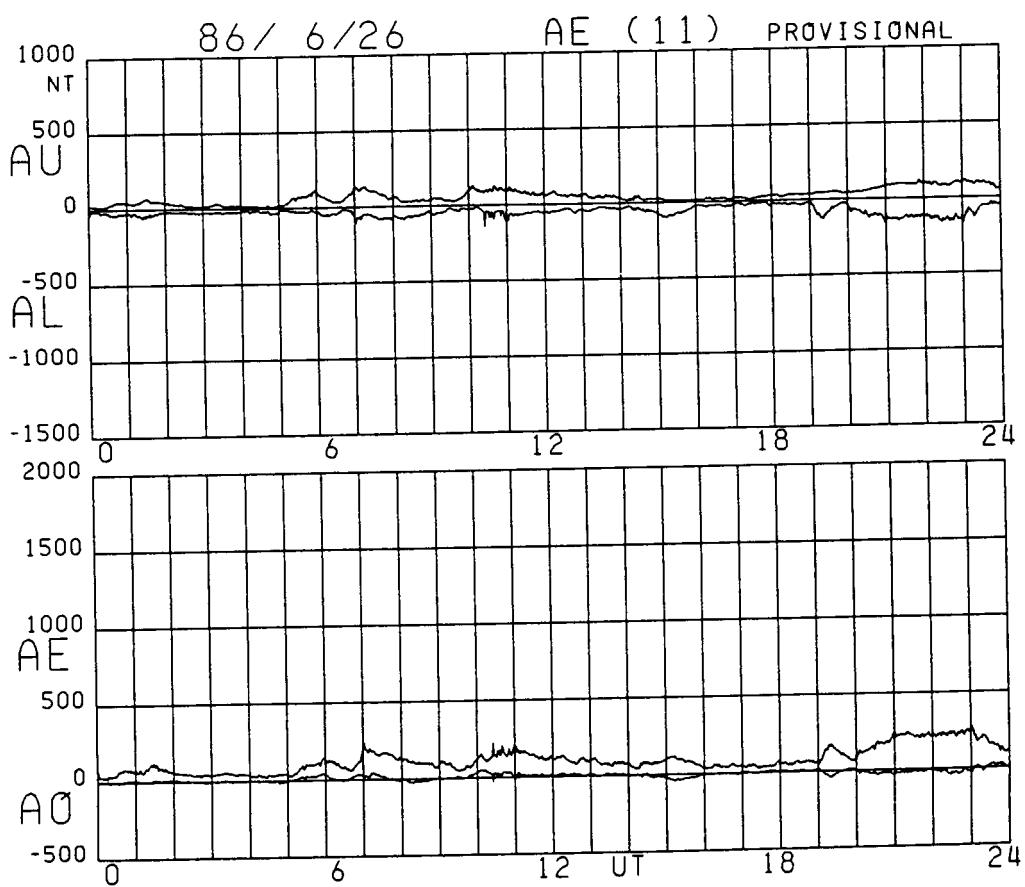
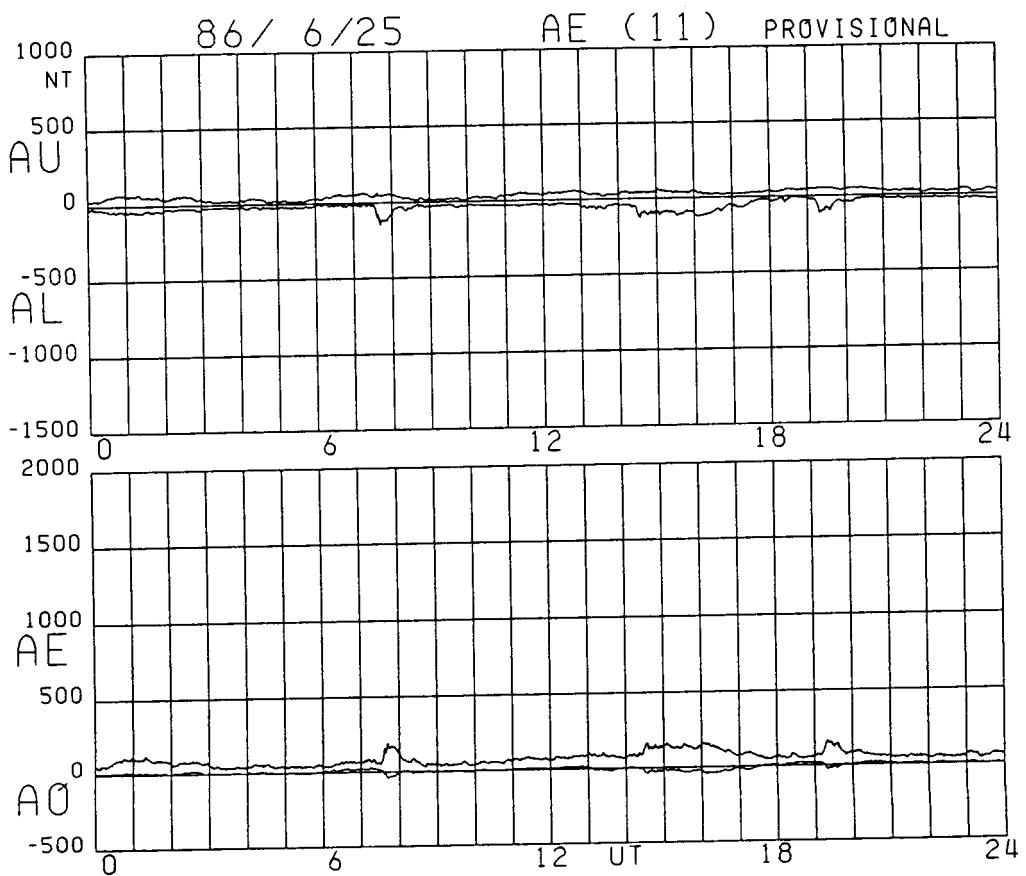
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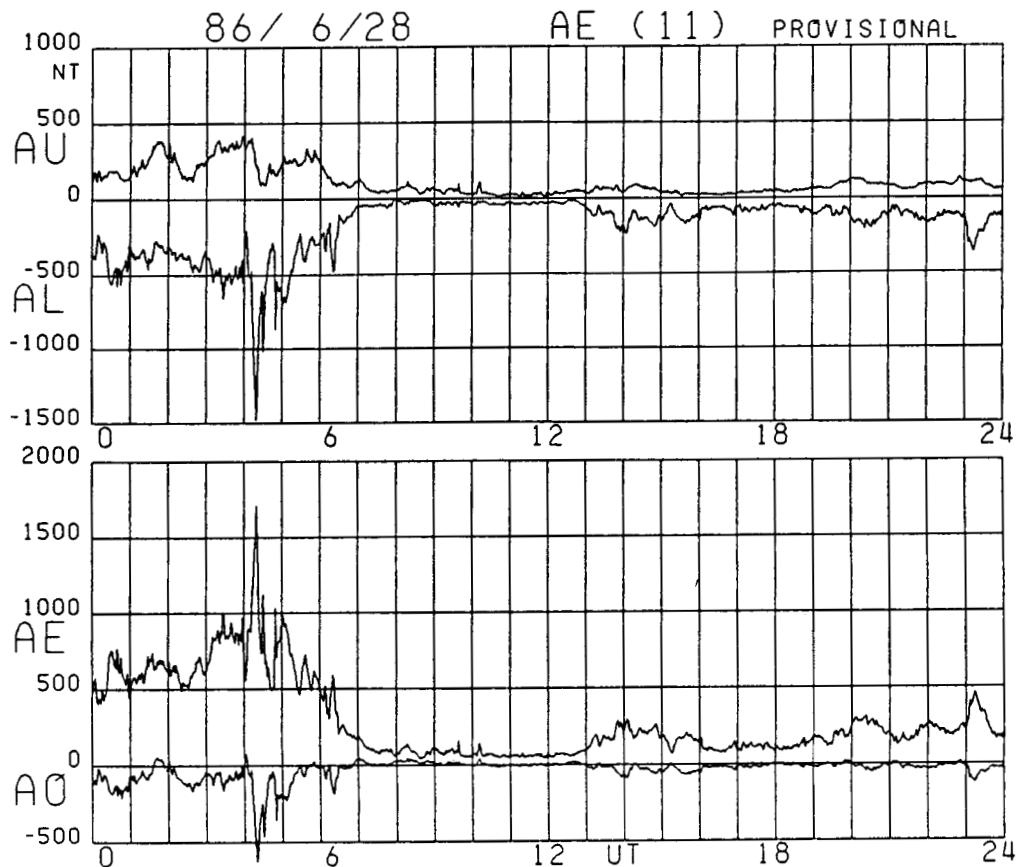
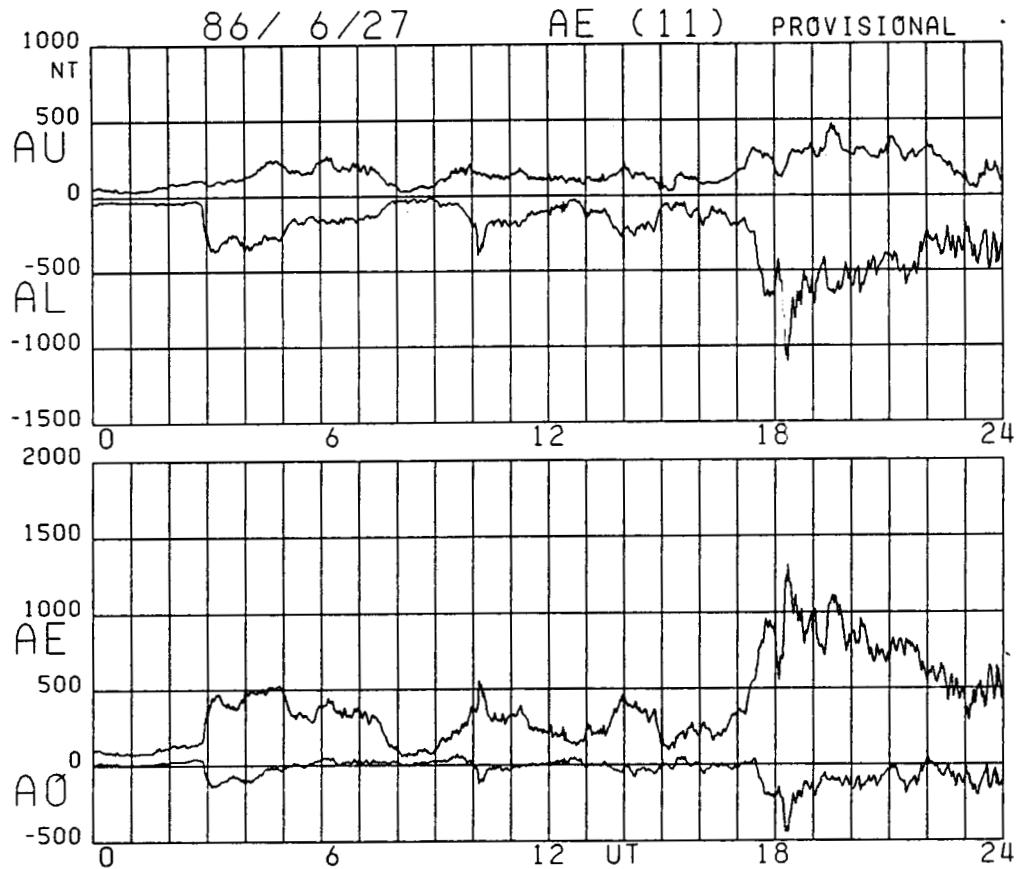
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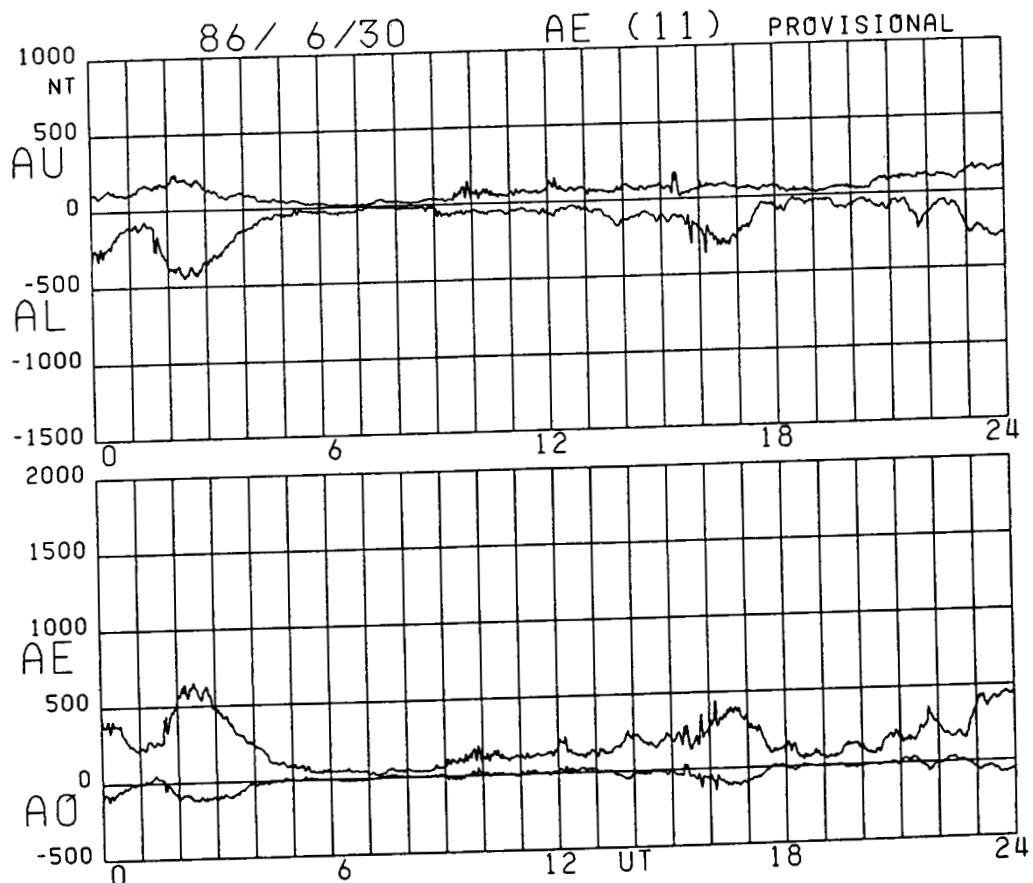
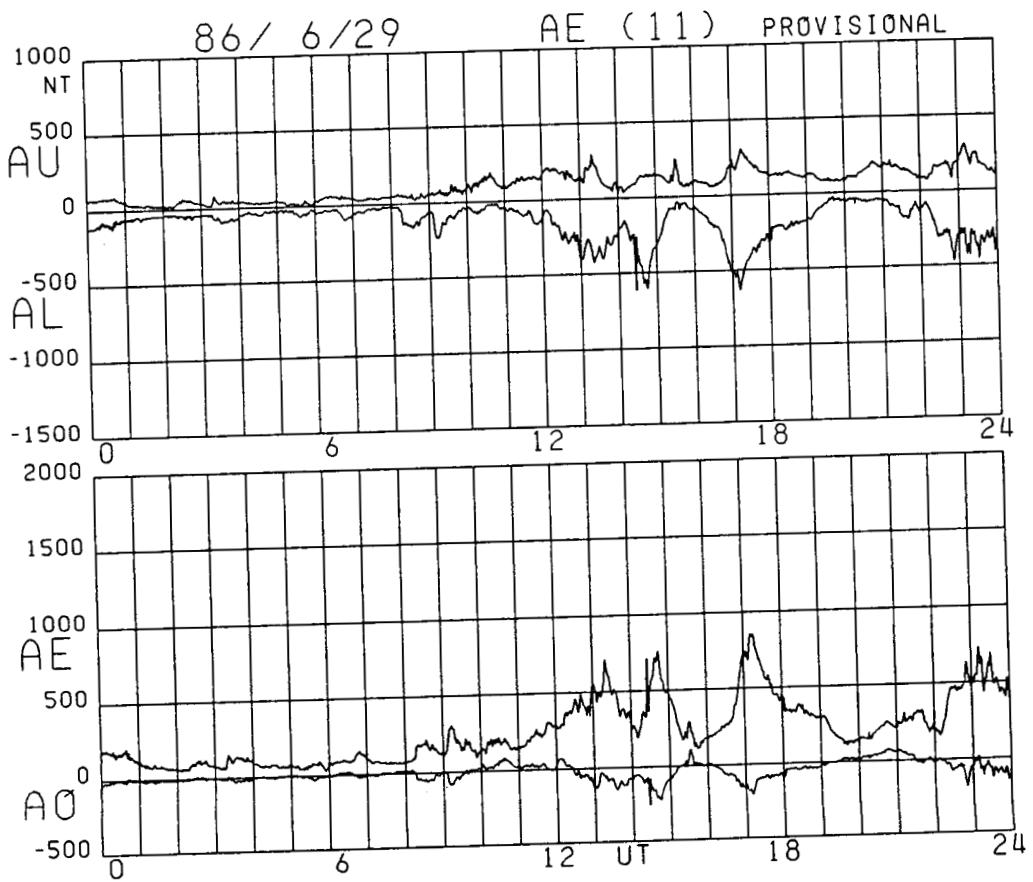
Prov.AE 8606 Fig.1-12



Prov.AE 8606 Fig.1-13



Prov.AE 8606 Fig.1-14



Prov.AE 8606 Fig.1-15